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ABSTRACT

A study was conducted investigating whether a sequence of visuals presented in a serial manner differs in connotative meaning from the same set of visuals presented simultaneously. How the meanings of pairs of shots relate to their constituent visuals was also explored. Sixteen pairs of visuals were presented to both male and female subjects in small community college classrooms on two separate occasions, once in simultaneous and again in sequential juxtaposition. Ratings for the visuals were obtained on eleven semantic differential scales. Ratings of the same visuals not in juxtaposition were also made by a separate group. Measurements of connotative meanings were compared between these simultaneous, sequential, and single conditions. No significant difference was found between sequential and simultaneous juxtaposition of a single action shot of a face; nor between either form of juxtaposition and presentation singly; nor between either form of juxtaposition rated as a whole. It was found in six out of eight pairs, that the rating of the pair resembled the rating of one of its constituents; in two cases, the ratings resembled neither constituent. (JEG)

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A COMPARISON OF THE CONNOTATIVE MEANING OF VISUALS PRESENTED SINGLY AND IN SIMULTANEOUS AND SEQUENTIAL JUXTAPOSITIONS

by

Mildred Jean Noland

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CHAPTER I

INTRODUCTION

Williams and Debes, in their Proceedings of the First National Conference on Visual Literacy, define visual literacy as:

> . . . a group of vision competencies a human being can develop by seeing (at the same time he has and integrates) other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, and/or symbols, natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others. Through the appreciative use of these competencies, he is able to comprehend and enjoy the master-works of visual communication (Williams and Debes, 1970, p. 14).

Within the area of visual literacy falls filmic literacy, whereby one employs competencies to "read" motion pictures. Williams and Debes (1970, p. 13) also describe a hierarchy of skills characterizing the visually literate. Among the skills that apply to both the visually literate and the filmically literate individuals is the ability to read a sequence of objects or body language arranged to communicate a process, a nonphysical concept, or to create a desired emotional reaction.

In motion pictures, this sequencing, this ordering of elements or "montage", is thought by some to have created the language of the film. According to Bazin (1974, p. 25), the significance of film is found not so much in the objective content of the elements, but in the manner in which they are sequenced. This ability to "read" a sequence of visuals is also required in viewing multiple-image presentations, where two or more images are projected simultaneously. Comparing this simultaneous projection to traditionally presented serial sequences, as exists in motion pictures, Perrin tells the reader that the director has "'relinquished his image by image story-telling and begun to capitalize on the advantage of simultaneous montage'" (Trohanis, 1971, p. 22).

The notion of film language can be traced back to early aesthetic writings, where film was compared to other art forms. While such writings were of value in delineating broad parameters unique for the study of film, such writings lacked a systematic replicable analysis. Historically, there existed a plethora of approaches regarding the units of analysis in film language, and the field has not been without critics cautioning researchers on the difficulties inherent with studying "film language".

Pryluck and Snow (1967) recognize that the approaches available for research in film language are crude speculations in comparison to the descriptive systems that exist in psycholinguistics. As much earlier theoretical work was not well suited to filmic analysis, a need was recognized for the development of terms, categories, and propositions that could be used in studying the syntactic and semantic dimensions of film. Approaching film as if it were a language, Worth (1966, 1968) developed a precise metalanguage and delineated dimensions that the objective analysis of film structure requires.

One parameter Worth uses in describing structural elements of film is sequence, a syntactic dimension of film language. It is sequence that gives meaning to the shots (edemes). Worth and other researchers are interested in the process by which meaning is transferred from a set of single shots to a sequence of shots, or the placing of a shot within a context.

Just as Miller (1965) maintains that the significance of a sentence is not the linear sum of the words which compose it, so film theorists contend that the meaning of a sequence of shots is not equal to the linear sum of the shots constituting the sequence. It is through a particular sequencing of words that sentences have a certain meaning; it is through a particular sequencing of shots that a film takes on meaning.

This sequencing of visuals can be accomplished in a serial fashion, or in a simultaneous manner. Visuals presented serially are viewed one at a time, such as in a motion picture, where when one shot disappears, another appears in its place. Visuals presented simultaneously can be viewed juxtaposed to one another at the same time, as in a multiple imagery presentation.

The present study was concerned with whether a sequence of visuals presented in a serial manner (characteristic of motion pictures) differed in meaning from the same sequence of visuals presented simultaneously. Specifically, when two shots are juxtaposed in a serial presentation, do they have a somewhat different connotative meaning from the same two shots juxtaposed simultaneously?

That such a difference is expected to exist is reflected in Trohanis's statement concerning two or more visuals seen together, often with juxtaposition continually changing. It is in this condition that a complexity of ideas is triggered within the viewer, and he is permitted to draw what he can from the stimuli, with the facts that have been presented (Trohanis, 1971, p. 20).

That such a comparison between simultaneously and serially presented visuals is needed is reflected in Goldstein's statement concerning research comparing images presented simultaneously and singly--"Unfortunately, little research has been done in this area and the results that are available are often equivocal" (Goldstein, 1975, p. 35).

While an analysis of the meaning of an isolated two-shot sequence may appear too minute an area of investigation for some, it is this specificity and precision that has led to the development of the science of linguistics. As long as such variables are suspected to affect cognitive processes, they cannot be neglected. Such research is necessary for the acquisition of a body of principles upon which production and selection decisions can be made.

Before proceeding, it should be mentioned that this concern for the delineation of the elements of film and the study of film form has not always been an area of interest to researchers. For a time, psychologists and educators paid more attention to the sorts of information that could best be communicated by film, and so content was more in focus as an area of study, to the exclusion of form. Film was reduced mainly to a transmission channel, so that film's unique method of communicating experience was seen more as a trivial side issue. Film was then regarded as one of the many "message mediating vehicles" (Pryluck and Snow, 1967, p. 73).

One investigation regarded by educators as quite important is the survey of research conducted by Hoban and van Ormer. Expressing the need for instructors to know the kinds of research that have been conducted on film in regard to learning, as well as what beliefs about the efficacy of film have been experimentally supported, Hoban and van Ormer surveyed film research over a thirty-two year period. Presenting a summary of the research from 1918 to 1950, it is noted that these studies primarily dealt with the observed effects of motion pictures on behavior. Of this research, only a relatively small section involved film literacy. From this survey covering over thirty years of research, the major conclusions are:

1. very little is known about it.
2. what is included in this nebulous category are the abilities to interpret such techniques as closeups, dissolves, montages, and other filmic conventions.

Hoban and van Ormer add, however, that some evidence did seem to indicate the existence of film literacy, that it was related to practice in viewing films and practice in learning from them, and that it influenced learning from films (Hoban and van Ormer, 1970, p. 1 and p. 7.27).

In regard to film literacy research, Salomon distinguishes between research _on_ instructional media, and research _with_ instructional media. Research _on_ instructional media is concerned with "_the unique cognitive functions that unique modes of presentation can accomplish_" (Salomon, 1970, p. 40). This area remains mainly unexplored. Research _with_ instructional media examines learning in which media happened to be used as mediators of a stimulus. Such research is not very enlightening about the function of the media. While studies have employed television and films, one must remember that the use of some electro-mechanical tool in a study does not qualify it as research _on_ media (Salomon, 1970, p. 40).

According to Pryluck and Snow, lack of research on media is part of a more general failure to specify the range of media communication characteristics, and to study the effects of these characteristics on learning. As conceptual difficulties have arisen, there exists a paucity of theoretical and empirical attention regarding the specification of these media characteristics which constitute film form. Film research (in educational films) has been confined to the simplest aspects of film that contribute to educational objectives. Citing Hoban and van Ormer,

> Film research to date has been a feast of investigation in factual learning, in attitude change, and in perceptual-motor learning, and a famine of investigation in what has long been referred to in educational psychology as "the higher mental processes." By "higher mental processes" are meant those rational activities unique to man--conceptualization, critical thinking, generalization, etc. (Pryluck and Snow, 1967, p. 59).

Because elemental physical and structural film characteristics have never been elaborated upon in sufficient detail, it has not been possible to determine the informational interactions with learners. Unless these specifications are delineated, only the simplest applicability of film to instructional objectives will be determined (Pryluck and Snow, 1967, pp. 58-59).

In short, there evolved two sorts of approaches to the study of film. The early aesthetic approach analyzed the technical aspects of film production, though not empirically, in regard to their phenomenological effect on the viewer. The content-oriented approach reduced film to a transmission channel, and the content of film became more important than its form.

Acknowledging the existence of these two approaches to film study, Sneider's "The Language of Vision" reminds the reader of the danger in confusing fine arts and aesthetics with more practical and utilitarian functions of visual communication. Aesthetics has been considered a philosophic discipline that involves inquiry into the subjective experience of beauty. While the artist is more interested in creating objects of beauty with no real systematic concern for the communication effects of his art work, it is the communication specialist who is mainly interested in meaning. He is concerned with form only as it contributes to meaning. Whoever elects to deal with the creative use of visual media is likely to be torn between aesthetic considerations and the more objective findings in the science of communication. Sneider goes on to suggest that theorists would perhaps find a resolution in viewing themselves first as communication specialists with an interest in art form only as it clarifies the message (Snider, 1960, p. 120).

Yet this distinction between form and content may not be as valid as it appears. Giannetti points out that to separate form and content in literature has often been referred to as "the heresy of _paraphrase_". The content of _Hamlet_, for example, can be found in a college outline, yet it cannot be contended that the play and the outline are the same except in form.

> The differences in other mediums are even more obvious. What is the "content" of a taste? Or a sound? A mathematical formula? All of these communicate information, each in a different way. To paraphrase any of this communication--in words, for example--is inevitably to change the true content as well as the form (Gianetti, 1976, pp. 6-7).

Form and content are relative, and distinguishing between them may have utility for temporarily isolating specific aspects of art in order to conduct a closer scrutiny. Yet such an isolation, while providing a more detailed insight into the work as a whole, is unnatural and artificial.

> By beginning with an understanding of the basic components of the film medium, various "languages," as it were, we will eventually understand how form and content in the cinema, as in the other arts, are ultimately the same (Gianetti, 1976, p. 7).

In summary, many psychologists and educators had been more interested in the content of film as opposed to its structure. Realizing that the separation of content and form may not be valid, a number of researchers were turning to the study of film form. The next chapter will examine the trends in the study of film form, beginning with the aesthetic origins of the idea of film language, and the notion of filmic illiteracy. A variety of approaches to the study of film as a language will be examined, and the linguistic approach to filmic analysis will be given considerable attention. Following a presentation of research on sequence, the concept of multiple-image will be explored. Lastly, consideration of the utility of the semantic differential for the present study will be offered.

CHAPTER II

REVIEW OF THE LITERATURE

Aesthetic Origins of Film Language

Pryluck (1968, p. 372) mentions the vague use of the terms "film language", "grammar of the film", and "syntax of the film". Such phraseology is obscure enough to make these terms difficult to deal with directly, yet such terms are legitimate enough so that one cannot ignore them completely. Such notions of film language had their beginnings in aesthetic writings, where certain rules were discussed that dealt with the use of film. These writings, however, were predominantly concerned with film as an art form, and much of this early writing involves the comparison of film art to other art forms.

In Stephenson and Debrix's The Cinema as Art, for example, the following three stages of artistic activity are identified:

1. The artist's experience
2. The expression of this experience through some medium
3. The kindling of a similar experience in the audience (Stephenson and Debrix, 1974, p. 19).

Their entire work was then based on the role of the motion picture medium in artistic activity.

Balazs reminds the reader that film art is unique from other arts. As most art forms are microcosms adhering to laws of their own, the work of art is indeed separate from reality. Those who view movies, however, do not see them as distant and inaccessible. Film art violates the principle of self-contained composition, because the distance between the viewer and the film is eliminated. The elimination of this distance between the spectator and the film occurs through the psychological act of identification, wherein film intentionally creates the illusion that the spectator is in the center of the action (Balazs, 1970, pp. 49-50).

In Balazs' chapter "A New Form 'Language'", film art is contrasted with theatre art. Among the differences he notes between film and theatre art are:

1. The varying distance between the spectator and the scene.
2. The division of integral pictures of the scenes into sections (shots).
3. The variation of the angle and perspective of the shots within the same scene.
4. The existence of montage, where shots are assembled so that a scene is made up of a mosaic of frames aligned chronologically.

These shots and scenes are arranged in such a fashion that the viewer does not look at a scene at random. Rather, his eyes are led from detail to detail, along the lines of the director's montage, so that the director not only shows the spectator the film, he further interprets it for him (Balazs, 1970, pp. 31-32).

In I. Pichel's "Seeing with the Camera", one is reminded that it was this changing of the camera's position, seemingly without any interruption in the flow of the spectacle, that marked the first technical advance in making film a new and unique form of visual experience. With the fixed relationship between the spectator and the action eliminated, action could be brought closer, or the viewer could experience the sensation of moving closer. Further, it was easy to establish the filmic convention requiring the audience to take for granted these automatic shifts in viewpoint, as such shifts resembled not only the basic characteristics of movement but also represented fairly accurately the working of the viewer's imagination.

> This structural motion in film objectifies fairly closely the manner in which the eye seeks out any occurrence or spectacle the most interesting person or action and follows it to the exclusion of other elements presented at the same time. It operates as the mind does when one reads a story, visualizing the author's account of the actions now of the one character and now of another, the events now in one place and now in another, the observing of large panoramas and then minute details. It also objectifies magically, as no other medium can, the wish to be able to come closer, to see more clearly and intimately than life or the earlier forms of theatre art allowed (Pichel, 1945, p. 139).

Pryluck (1968, p. 372) adds that because such writings were predominantly concerned with film as an art form, normative rules were enumerated involving the plethora of techniques that were present in film but excluded from other art forms. In this regard, writers were concerned with the technical aspects of motion picture production, and the attendant phenomenal experience of the viewer that resulted in the psychological act of identification.

In his early writing, The Film: A Psychological Study, Munsterberg pointed out that not only does the viewer have the desire to know what is going on in the particular time and place that he sees on the screen, but he also desires to know simultaneous events that are intimately connected to what he is viewing. Unlike the theatre, which is fairly limited to showing the onlooker events in one place, the film can more readily present a series of richly connected events.

> The whole manifoldness of parallel currents with their endless inter-connections is the true substance of our particular art to force all into one steady development between the walls of one room, but every letter and telephone call to the room remind us even then that other developments with other settings are proceeding at the same instant. The soul longs for the whole interplay, and the richer it is in contrasts, the more satisfaction may be drawn from our simultaneous presence in many quarters. The photoplay alone gives us a chance for such omnipresence (Munsterberg, 1970, pp. 44-45).

Munsterberg further claimed that there appears to be no limit to the number of threads that may be interwoven. A complex intrigue may require half a dozen such threads, and while they have been edited together, one psychologically is not left with the impression that they occur one after another, but rather, simultaneously. For Munsterberg, the temporal element disappears as action irradiates in all directions (Munsterberg, 1970, p. 45).

A number of writers concerned with normative rules unique to motion pictures nevertheless claimed to be concerned with a more critical approach to the analysis of filmic conventions on the phenomenal experience of the viewer. According to Munsterberg, if one attempts to understand how music exerts such an overwhelming effect on a listener, one would not begin by describing the structure of musical instruments, or explaining laws of sound. Rather, it is necessary to proceed from psychological considerations, and inquire into the mental processes of hearing tones and chords, harmonies, and disharmonies, tone qualities and intensities, rhythms and phrases. Similarly, to study film from a psychological perspective requires that one consider the "elementary excitements of one mind which enter into our experience of the moving pictures" (Munsterberg, 1970, p. 19).

In support of this, R. Griffith's forward to Munsterberg's book criticizes the phraseology common to film, such as "the screen of consciousness". Such filmic "mumbo jumbo" is scattered throughout both artistic and scientific literature of the past fifty years. Of this literature Griffith says:

> Everybody knows from his own experience that there is a sharp analogy between the film forms which have been worked out since 1900 and the mental mechanisms by which consciousness functions at all levels. Everybody knows this--but the knowledge has remained vague, moony, nebulous. . . . Those whose ordinary business it is to nail down such insights--to secure and organize the evidence, and draw conclusions from it--have conspicuously failed to take the hurdle, and this includes experimental psychologists as well as film theorists (Munsterberg, 1970, p. v).

But even in Munsterberg's subsequent analysis of the psychological aspects of film viewing, such jargon as "The soul longs for the whole interplay", and "There appears to be no end to the threads that may be interwoven"--maybe even six--hardly seems objectively substantiated.

Stephenson and Debrix, again in The Cinema as Art, realize that many articles dealing with cinema consisted solely of subjective personal views lacking in objective support. While Stephenson and Debrix (1974, p. 23) allege to attempt to objectively analyze film aesthetics based on examples from films, even their analyses lack intersubjective agreement. One of the difficulties in film research, according to these authors, is in the protean nature of the medium itself. In its short history, endless technical changes have taken place, changes which have drastically affected it as an art form.

> In three generations the cinema has gone through more mutations than music or painting in 3,000 years (Stephenson and Debrix, 1974, p. 24).

Hence, the speculative literature dealing with the aesthetic experience of film and film language, while having heuristic potential for generating certain questions for research, has had little objective agreement to it. Yet what these early aesthetic writers and more recent psycholinguistically oriented researchers have in common is an adherence to the notion that the viewer seems to have developed a sense for looking at film. To cite Balazs,

> The birth of film art led not only to the creation of new works of art but to the emergence of new human faculties with which to perceive and understand this new art (Balazs, 1970, p. 33).

The spectator's sensibility and receptivity develops as a function of artistic influence, and may in fact be created by it. It is here that Balazs goes on to recognize the need, not solely for a history of art, but also for a history of art linked with the development of man's sensibilities. Indeed, it was the purpose of his Theory of Film to explore

> . . . that sphere of the development of human sensibility which developed in mutual interaction with the evolution of the art of film (Balazs, 1970, p. 33).

It is likewise the intention of more recent theorists to examine the development in the viewer's ability to "read" film, as various techniques in film are employed. What will follow is a series of anecdotal accounts illustrating the sorts of filmic illiteracy that exist among cultures which have not had an opportunity to interact with film. A consideration of the approaches to the study of film language will then follow.

Filmic Illiteracy

According to the Forsdales (1970, pp. 263-264), "total film illiteracy" would be characterized by the inability to "recognize familiar objects, people, places, and action when they are shown directly and without contrivance on the screen." Because audiences have lived with filmic conventions for so long, they tend to think that the ability to read film is possessed by all. Yet time and again, primitive peoples are cited, who demonstrate an inability to identify the content of pictures upon their first exposure to them. The Forsdales illustrate five such levels of filmic illiteracy.

At the lowest rung of the ladder of filmic illiteracy are found those who are unable to identify familiar objects and people when projected on the screen. Consider R. Griffith's account of Robert Flaherty's experience in showing a film to the Eskimos (1920):

> Then the picture. A figure appears. There is silence. They (the Eskimos) do not understand. "See, it is Nanook!" the trader cries. . . . . The silence deepens. They cannot understand (Forsdale, 1970, p. 267).

On the second level of filmic illiteracy, the audience can comprehend separate objects, but cannot unite familiar movements into meaningful action. In John Wilson's account of naive African film viewers, we read:

> Among the films was a moving picture in very slow time, very slow technique, of what would be required of the ordinary household in a primitive African village in getting rid of standing water--draining pools, picking up all empty tins and putting them away, and so forth. We showed this film to an audience and asked

> them what they had seen, and they said they had seen a chicken, a fowl, and we were not sure that there was a fowl in it! So we very carefully scanned the frames one by one for this fowl, and sure enough, for about a second, a fowl went over the corner of the frame. Someone had frightened the fowl and it had taken flight through the righthand, bottom segment of the frame. This apparently was all that had been seen. The other things we had hoped they would pick up had not been picked up at all, and they had seen something which we didn't know was in the film until we inspected it minutely (Wilson, 1961, p. 9).

Upon questioning the viewers, they claimed they did see the man in the film, but they had not made a whole story out of the action--in fact, they had not seen a total frame. Rather, these pre-literates inspected each frame for details. It is the filmically sophisticated audience that focuses somewhat in front of a flat screen in order to survey the whole frame. It is in this sense that a picture is like a convention. People who are not used to looking at a picture will not look at it as a whole, but will inspect it rapidly like a television scanner (Wilson, 1961, pp. 9-10).

At the third level of illiteracy, there exists a confusion of the picture with reality. Here is R. Griffith's report on Flaherty's presentation of a portion of Nanook of the North to Nanook's Eskimo friends:

> . . . There is something in the background. The something moves. It lifts its head.
>
> "Ivuik! Ivuik!" (walrus) shakes the room. The figure (Nanook) stands up, harpoon poised in hand.
>
> "Be sure of your harpoon! Be sure of your harpoon!" the audience cries.
>
> The figure strikes down, the walrus rolls off into the sea. More figures rush in; they grab the harpoon line. For dear life they hold on.
>
> "Hold him! Hold him!" shout the men. "Hold him! Hold him!" squeal the women. "Hold him! Hold him!" pipe the children.
>
> The walrus' mate dives in, and by locking tusks attempts rescue.

> "Hold him!" gasps the crowd.
>
> Nanook and his crew, although their arms seem to be breaking, hold on. But slowly and surely the threshing walrus drags the figures nearer the sea.
>
> "Hold him! Hold him!" they despair. They are breathing hard. "Dig in! Dig in!" they rasp, as Nanook's feet slip another inch through the sand.
>
> Deep silence. Suddenly the line sags, the crew, like a flash, draw in the slack, and inch by inch the walrus is pulled to shore. Bedlam rocks the house (Forsdale, 1970, pp. 268-269).

At the next level of illiteracy, the viewer has no understanding of simple film conventions. Referring to the experience of film-maker John Humphry:

> You lose an audience immediately once a fade goes into a film. Why? Because the screen's black and they all turn to look at the projector to see what happened to it . . . (D)issolves, fades, wipes and all the optical effects that we here in the United States more or less take as punctuation marks in a film, are not understood. They wonder what's wrong with the projector (Forsdale, 1970, p. 269).

According to John Wilson's African experience:

> Panning shots were very confusing because the audience didn't realize what was happening. They thought the items and details inside the picture were literally moving. You see, the convention was not accepted. Nor was the idea of a person sitting still while the camera was brought in to a close-up; this was a strange thing, this picture growing bigger in your presence (Wilson, 1961, p. 10).

Wilson's experience led him to conclude that Western film is a very highly conventionalized piece of symbolism, in spite of the extreme sense of reality we experience. To illustrate,

> . . . we found that if you were telling a story about two men to an African audience and one had finished his business and he went off the edge of the screen, the audience wanted to know what had happened to him; they didn't accept that this was just the end of him and that he was of no more interest in the story.

> They wanted to know what happened to this fellow, and we had to write stories that way, putting in a log of material that wasn't to us necessary. We had to follow him along the street until he took a natural turn--he mustn't walk off the side of the screen, but must walk down the street and make a natural turn. It was quite understandable that he could disappear around the turn. The action had to follow a natural course of events (Wilson, 1961, p. 10).

The last level of filmic illiteracy illustrated by the Forsdales is characterized as viewer indifference to that which is unfamiliar. Here is Peter Matthiessen's account of the Caraja Indians in Brazil, in reference to the viewing of color slides:

> One night, George Class showed the Indians color slides, including several shots of themselves. The latter they took in their stride, giggling a little, after which they gazed admiringly, for the first time in their lives, at pictures of cities, of the sea, and of an ocean liner, all identified for them by Otto Austel. But, curiously, they were affected most by pictures of wild animals and birds--the egrets, ocelots, and monkeys with which they were familiar. Several men jumped up and pantomimed drawing the bow and arrow, aiming at the screen, and distances through the forest--Coo--ee--ee--or hooted their rich, infectious laughter (Forsdale, 1970, p. 270).

The Forsdales realize that they have illustrated the very basic sorts of illiteracy, providing examples perhaps analogous to verbal illiterates who do not know the alphabet or elementary vocabulary. This was done with the intent to show that understanding the movies is not an automatic activity. The Forsdales add that there are many middle and upper rungs to the ladder of filmic literacy, which in many ways are comparable to the ladder of print literacy (Forsdale, 1970, p. 272).

This literacy for film, then, was not automatically endowed on the viewing public, but rather through repeated exposure the audience learned to "read" film And just as this literacy had to develop in the adult viewing public, there is some evidence to suggest that it also develops in the younger individual, in stages that are commensurate with Piaget's cognitive developmental scheme. In his 1971 study, Rheinish used Piaget's cognitive developmental framework to predict what children at various ages would and would not be able to interpret in films. For example, a child at the preoperational level typically focuses on successive states of a display rather than on transformations that take place between two states. As children at this level are unable to integrate a series of states into a whole, one would suspect that such children would view a film segmentally, rather than as an integrated sequence--"They do not close the unexplained gaps in film sequences as adults learn to" (Rheinish, 1971, p. 9).

Specifically, Rheinish's study dealt with how well children perceive and interpret certain transitional devices commonly used in film, among these the lap dissolve and image magnification on a cut. Subjects who were five, seven, nine, and eleven years old were shown theatrical and educational films, so that they would see the transitional device employed within a specific context. After viewing each element, the film was stopped and the subject was asked to explain what had happened. Rheinish found that as these subjects between five and eleven years of age matured, they recognized with greater accuracy the intended meaning of these filmic conventions (Rheinish, 1971, pp. 40-54).

The fact that these conventions are learned is reflected in the children's perceptions of what had taken place on the film. For example, many five year olds believed that the image got larger because the actor stood up, the actor grew older, or the actor grew larger. Five and seven year olds interpreted a dissolve from four letters to the entire word as meaning the person wrote "extra fast". Further, judges found it difficult to judge five year olds' responses to time lapses, as it was clear that these children had very little understanding of real time (Rheinish, 1970, p. 59).

Film literacy, then develops when the viewing public has had repeated exposure to various filmic devices. Literacy for films is also learned in childhood, and appears to be contingent on one's cognitive developmental stage of reasoning. With the growing awareness that "reading a film" may be very much like "reading a book" or listening to speech, and that learning is required for both, there has been a great deal of attention paid to the notion of studying film literacy as one would study literacy for written materials. An examination of the variety of approaches to the study of film language will now be presented.

The Study of Film Language: A Potpourri

In a relatively short period of time, film has evolved from an almost crude recording device to a sophisticated system of communication. Such increasing sophistication is manifested in the continuing development and refinement of the grammatical conventions of film art. Effects of this development are quite apparent in television, and can be seen in a comparison of present day productions with the older movies generally shown late at night. Pryluck and Snow cite one issue of TV Guide, describing a television program aired over a decade ago.

> We cut from flash-back to new scenes in the middle of lines and even once in the middle of a word. "She was nine--," says one character at the end of one scene; "--teen," says the next character, picking it up for a whole new scene (Pryluck and Snow, 1967, p. 55).

Yet when this technique was used in the formerly avant-garde Citizen Kane (1941), this filmic convention was described as late as 1953 as "rather unorthodox" editing. By 1964, however, it became a common experience shared by all viewers (Pryluck and Snow, 1967, p. 55). In line with this, Michael Roemer recognizes that in viewing a film two decades after its production, the public often considers its appearance ludicrous, after having initially hailed it as a masterpiece. What was a dramatic convention in 1940 has often been seen as a cliché by 1960 (Roemer, 1971, p. 101).

But how did the first motion pictures begin? The first productions were simple pictures of mundane occurrences. For example, a motion picture might be solely comprised of workers leaving a factory, or people walking down a street. These scenes were photographed from one vantage point, and the camera remained intact so that the scene was merely the unedited film as it came from the camera. Because such films were no more than a single scene of what seemed to be a singular unit of behavior, there was no concern for perceptual units in moving images. Eventually, however, filmmakers discovered that these single units of behavior could be glued together end to end to form a photoplay with many scenes, thus resembling the stage (Worth, 1968, p. 129).

It was in 1902 that Porter claimed that the scene was not the smallest unit, as it was capable of being divided into isolated bits of behavior which could be edited together. Yet at that time, most filmmakers adamantly contended that viewers would not be able to "know" what was going on unless they saw the scene in its unbroken entirety (Worth, 1968, p. 130), and for an extremely short time they were right. One is reminded of this filmic illiteracy when panic erupted in the theatre as D. W. Griffith showed ". . . a big close-up in a Hollywood cinema and a hugh 'severed' head smiled at the public for the first time" (Balazs, 1970, p. 35). While the spectators' difficulty in accepting the close-up was evidenced in their stamping and crying "Show us their feet!", the audience soon became accustomed to it (Montague, 1967, p. 99).

> This meant a "breakdown" now only in the perceptual field of, let us say, a "man" by showing us a sequence of a head or an eye or hands, but also a breakdown of the cognitive field by forcing us to put together separate ideas, or bits of ideas, across time. Just as we put together separate image events in film in the way we do tachistoscope images, so also are we able to put together idea bits such as an image of a man followed by an image of a snake, which might under some conditions compel us to infer "that man is a snake" (Worth, 1968, p. 130).

By 1923, Eisenstein saw the basic unit as a shot, defining it as the smallest unit of film used by the filmmaker, and with his central concept of "collision of ideas", he set down what can be seen as a special theory of cognitive interaction. It was Eisenstein's contention that a shot was equivalent to an idea, and that one idea colliding with another will eventuate in the emergence of a third idea (Worth, 1968, p. 130).

Eisenstein considered montage to be the most powerful means of telling a story, montage being a syntax for the construction of each film fragment, and an elementary rule of "filmorthography". As models for film form were very new, no classic tradition could be set up as the paradigm. Yet film language had nevertheless been characterized by a severe form and film diction.

> On a certain level our cinema has known such a severe responsibility for each shot, admitting it into a montage sequence with as much care as a line of poetry is admitted into a poem, or each musical atom is admitted into a fugue (Eisenstein, 1949, p. 115).

Eisenstein was interested in analyzing in detail the composition built by the interaction of the shot within the frame, and its placement in a series (montage). Although such an analysis appeared to be quite complex, Eisenstein felt that his was actually descriptive and easy when compared with analyses of literary musical forms (Eisenstein, 1949, p. 120).

Arnheim (1933) and Pudovkin (1927) both attempted to formulate elements of film, Pudovkin's elements being contrast, similarity, synchronism, recurrence of theme, and parallel structure. Arnheim formulated operational units which were elements attempting to define such laws as "apparent size", "constancy of viewpoint", "manipulation of focus", etc. Delineating twenty such units, Arnheim eventually concluded that hundreds more may exist (Worth, 1968, p. 131).

At any rate, the rhetoric of motion pictures became more and more differentiated from theatre presentations through techniques of montage, whereby time and space were altered through editing. Balazs, in accordance with what has already been presented, maintained that it is from repeated exposure to various shots and optical techniques that the viewer's consciousness has somehow evolved, so that he has learned his visual associations of ideas. Perceptually, the individual has learned to integrate disjointed pictures into coherent scenes, even though he is not aware of the complex psychological processes concerning this integration. To quote Balazs,

> It is amazing to what extent we have, in a couple of decades, learned to see picture perspectives, picture metaphors, and picture symbols, how greatly we have developed our visual and cultural sensibility (Balazs, 1970, p. 35).

What this evolution in the spectator's consciousness refers to is the acquisition of the ability to "read" film--to be filmically literate. With the development of this ability, many have sought to develop theoretical positions whereby film is viewed as a language. What will follow is a discussion of certain problems inherent in viewing film as a language, as well as a presentation of a variety of positions that assume film to be a language.

To begin, Travers cautions the reader in regard to the imperfect parallel between film language and written language:

> I use the term "film language" (and "visual language") analogically. The analogy between verbal language and film language is very plain. Both words and film images may be used to convey "ideas about something" and in both cases there are more or less definite rules and laws that govern this process, so that we may speak about a system of forms to convey ideas. This comparison does not, however, include any suggestion that the two form-systems are identical. I do not feel any need to carry the comparison further, and realize that to suggest a parallelism between separate images and combinations of images on the one side and between words and sentences on the other would go too far (Travers, 1964, p. 1-10).

Further, in discussing the way words and images codify and present reality, Cooney and Allen offer Susan Langer's claim that there is indeed a great difference between the visual and the verbal.

> Visual forms--lines, colors, proportions, etc.,--are just as capable of articulation, i.e., of complex combinations, as words. But the laws that govern this sort of articulation are altogether different from the laws of syntax that govern language. The most radical difference is that visual forms are not discursive. They do not present their constituents successively, but simultaneously, so that relations determining a visual structure are grasped in one act of vision. Their complexity, consequently, is not limited, as the complexity of a discourse is limited, by what the mind can retain from the beginning of an apperceptive act to the end of it (Cooney and Allen, 1964, p. 313).

According to Eisner, inherent in visual communication are certain syntactical systems that are created as symbols and ordered into new relational forms. Yet there are important differences between the symbolic and syntactical systems in the visual arts and those in discursive language, the most salient being the rate of change within each form. The visual forms of the 1850's are unlike those of today, as the symbolic and syntactic forms have greatly altered.

> Indeed, if the creation of new art style is an instance of such change, the language of the visual arts has gone through about a dozen major transformations since 1850. To render comprehensible these languages, one must understand the symbolic and syntactical forms they present (Eisner, 1970, p. 113).

While Travers maintains a comparison between words and images, and sentences and scenes is unjustified, while for Langer syntactical laws for images are altogether different from syntactical laws for words, and while Eisner claims that visual arts have gone through a host of transformations, Hodgkinson adds that, even though rules governing pictures do exist, they are less clearly defined and accepted than rules for verbal communication. Further, the addition of two dimensions to the visual language (motion and time) has created confusion and difficulty. It is a wonder that, within the short span of fifty years, the works of art and feats of communication have been attained with such a complex medium. "Screen" language has absorbed other languages into it (color, moving pictures, speech, sound effects), and thus has been referred to as a "total language" (Hodgkinson, 1969, p. 9).

Revealing the complexity of an analysis of this "total language", Pryluck and Snow subdivide motion pictures into the following categories:

DIGITAL CHANNELS

Audio verbal (words)

Video verbal (printed projected words)

ANALOGIC CHANNELS

Audio nonverbal (sound effects)

Video nonverbal (action portrayed, gestures, facial expressions, etc.)

Audio paraverbal (Inflections and intonations associated with spoken words)

Video paraverbal (Embellishments and elaborations on the printed words)

Pryluck and Snow add that each class of channels may have its own syntactic and semantic characteristics, and a detailed structural analysis of each may be in order.

According to Marcus, the elements of narrative form an actual, not a figural language. It has been said that film "vocabulary" (word) is the photographic image, and the grammar and syntax are determined by the cutting, the editing, or the montage processes used in the arrangement of shots. When a series of shots are arranged in a particular sequence, they carry meaning in the same way a phrase does. For example, a shot of a burning house, an airplane, and a crying child each has a simple content. Yet when they are arranged in the order of an airplane--a burning house--a crying child, they make a statement (Marcus, 1971, p. 116).

For Schillaci, the problem with film study is that it is suffering from the adolescent problem of rapid growth and identity. He contends that it is now time to approach film on the level of a verbal communication, with as critical an analysis as one would study literature.

> The time has come, in short, to speak of the language of images and to use this discussion as an introduction to the larger question of how a film means (Schillaci, 1970, pp. 75-76).

In paralleling film with grammatical constructs in written language (and while realizing that there is no adequate vocabulary for these elements), Schillaci asserts that the important intelligible units of film include the frame, shot, scene, and sequence. He compares the frame, a single projected photograph, to the letter of a word, "which communicates only in combination with other letters to which it is joined" (Schillaci, 1970, p. 77). The shot is analogous to the word and is the basic unit of film communication. Shots are joined in film in the same way that words are connected into sentences, paragraphs, chapters, and parts. No more specific corresponding vocabulary exists in film language, and hence scene covers a number of units within the film. A scene presents a complete segment of the action, even though this action may occur in several places. Long and short scenes have verbal counterparts in sentences and paragraphs. Finally, sequence is the unit of film that corresponds to the chapters of a novel or acts of a play. Major divisions will often correspond to a major place or time change.

Schillaci further maintains that the above four units are joined together into meaningful combinations through punctuation. While there is no one-to-one correspondence between word spacing, colon, semicolon, period, comma, paragraph, and chapter divisions, with the punctuation of film language, Schillaci distinguishes major and minor visual intervals. It is his basic contention, however, that punctuation begins by joining shots into scenes. For him, "A shot, like a word, does not represent a complete idea. It must be joined with other shots to create an effect" (Schillaci, 1970, p. 78).

Others have taken issue with this notion, however. Unlike Schillaci, Sheridan holds that an individual shot corresponds to a sentence rather than a word, and the sequence of shots parallels the paragraph. The picture of people or objects is more complete than a sentence. If a director chooses to focus on a small object, it must be the case that this object is unique and particular. If it is a ring on a finger, for example, the shot of the ring has more specificity than the word "ring", since the word is a generalization referring to an entire category. The verbal statement "He put the ring on her finger" is far more generalized than the shot of a hand putting a ring onto a finger.

As another example, the verb tied suggests only a general relationship, not specifying what material is being tied, if the knot is loose or tight, and the reason for the tie. Yet a film shot simultaneously reveals the object, the people, as well as their relationship. McLuhan notes that the picture reveals many things at the same time, while reading a sequence of words and sentences has a cumulative build. "The picture provides simultaneous communication, while type, typography, provides a 'linear' communication" (Sheridan, 1965, pp. 4-5).

Also in contrast to Schillaci, Metz believes the cinema has no counterparts in phonemes or words. Difficulties with film syntaxes arise from the initial assumption that the image is comparable to the word, and the sequence to the sentence. In fact, however, the film image corresponds to one or more spoken sentences, while the sequence is comparable to a complex segment of discourse. In agreement with Sheridan, Metz claims that the shot, then, is closer to a sentence than a word. An image shows a man walking down the street, and it is equivalent to "a man is walking down the street." The same image parallels less the morphemes "man", "walk", "street", or "the".

> The image is a "sentence" less by its quality of meaning (a concept too difficult to handle, especially in film) than by its assertive status. The image is always actualized (Metz, 1974, pp. 65-67).

While an image, such as a closeup, may at first appear to correspond to only one word, it is still a sentence. A closeup of a revolver does not mean "revolver", a purely lexical unit, but at the very least it means "Here is a revolver!" This also says nothing about the connotation it evokes.

> It carries with it a here (a word which Andre Martinet rightly considers to be a pure index of actualization.) Even when the shot is a "word," it remains a kind of "sentence-word," such as one finds in certain languages (Metz, 1974, p. 67).

Metz felt that writers concerned with film grammar were at an impass.

> They claim to have a written syntax of film, but in fact, with their image-word, they have been thinking of something halfway between a lexicon and a morphology, something that does not exist in any language (Metz, 1974, p. 67).

While the syntax of the cinema does exist, it remains to be made, and it will only be made on a syntactical basis, not a morphological one. For Metz, the fault with many filmic theorists is that they have fallen into the tempting error of thinking that the cinema is "a specific language" rather than a "kind of language" (Metz, 1974, p. 41).

It was Hodgkinson's objective to define the basic elements of the symbols that constitute the screen vocabulary (shots), and the conventions that govern their use. Because shots, unlike words, are infinite in variety and number, there is no sense in compiling a "dictionary" of shots. Rather, one must examine the elements that constitute a shot. According to Hodgkinson, this is much more like examining the alphabetic elements (letters) of a verbal language. Hence, he presents the following outline of "alphabetic elements" of shots:

I. Motion
    A. Within the frame
    B. Of the camera or lens (tracking, panning, zooming)
    C. Motion created by editing
        1. Spatial (cut from one place to another)
        2. Temporal (fast, slow, or rhythmic cutting)

II. Images
  A. The use of the frame as a selection device for including significant action and deleting what is insignificant
  B. Selection of what aspects will be presented (long shot, closeup, medium shot, high or low angle)
  C. Tone of the image (emulsion, exposure, lighting, focus, costume, sets, color, texture)

III. Sound
  A. Music
  B. Sound effects
  C. Speech (Hodgkinson, 1969, pp. 53-55).

Not only does lack of consensus exist as to the parallel between the shot and the sequence, word and sentence, there is also disagreement concerning the comparison between the film and spoken and written language in general. According to novelist Robert Nathan, every novel has its verbal counterpart of the closeup, long shot, dissolve, and trucking. Further, ". . . The writer who uses his camera, who makes use of all the elements of the picture itself, can create the same effect of style as the most excellent paragraph of prose" (Nathan, 1945, p. 146). For Jarvie, while film language is very much like print, it is more comparable to poetry than prose. "The way connections are unstated, and the way concentration is used in film, is in a literal sense poetic; as in the adoption of strict rules for handling a structure, pace, time lapse, etc." (Jarvie, 1970, p. 220). For Metz, the image is always like speech, and never a unit of language (Metz, 1974, p. 67). Yet Eisenstein goes on to make the distinction between inner speech, and utterred speech.

Unlike the spoken language, in which the flow and sequence of thinking has been formulated into logical constructions, inner speech has its own unique structure, based on a distinct series of laws. And the same laws that form the foundation of inner speech also form the foundation of the variety of laws governing the form and composition of works of art. For Eisenstein,

> . . . there is not one formal method that does not prove to have the spit and image of one or another law governing the construction of inner speech, as distinct from the logic of uttered speech. It could not be otherwise (Eisenstein, 1949, p. 130).

Eisenstein adds that just as logical constructs adhere to a series of laws, likewise this inner speech or sensual thought obeys clearly defined laws and structural peculiarities. Not only are these laws known, they also constitute an inexhaustible storehouse of the laws for constructing form. It is through the study of such laws that one can master the mysteries of the technique of form.

D. Guerin sensed that our problem in the area of visual literacy was found in selecting the right words to explain the visual codes.

> The irony is that the visual codes are quite clear and easily decoded--which is attested to by the fact that they work so well. As "readers" of visual symbols, we are indeed quite literate. The real problem, it seems to me, is not that we are illiterate "readers" of the visual mode, but illiterate "speakers" of it (Guerin, 1970, p. 56).

Certainly the potpourri of opinions and the obfuscation that exists in regard to whether the shot is like a word or a sentence, whether the scene is like a sentence or a paragraph, whether film is like poetry or prose, or whether it is more like internal speech than external speech or writing, support Guerin's contention that we really have not as yet found an agreed upon way to speak of film language.

Many writers who have mentioned the "grammar" of the film have never developed a theory of grammar containing linguistic elements, or organization capable of syntactic structure.

> Although the term "grammar" has been used in connection with film, it has been used metaphorically, and no cohesive body of elements and operations has been formulated from which rules of syntax or use can be developed or studied (W[illegible], 1968, p. 132).

Pryluck and Snow feel that the approaches that are available for researchers in film language are crude speculations when compared to descriptive systems that exist in the area of psycholinguistics. Because researchers have lacked an adequate descriptive system, educational researchers have mainly dealt with questions of fairly gross, superficial media variables, which are rarely unique to the film medium in specific. Citing Roshal, we find that:

> ". . . We have failed both in coming to grips with the filmic essence and in working within a theoretical framework. The training film literature is barren of ideas on what this essence might be. . . . Until we do come to grips with montage, or whatever the true filmic qualities are, we are treating film as a recording, a transmission channel for training. If this be true . . . the main research requirement is for research on training, not on film" (Pryluck and Snow, 1967, p. 58).

For the purpose of testing conjectures about the process of film communication in regard to film as a linguistic, or rule-obeying behavior, much of this earlier theoretical work is not well suited as a basis of research. The elements lack economy of description, structure, and clarity, and it is not possible to deal with them either systematically or empirically. Worth then concludes that what is needed is a theoretical approach which makes an analysis of films possible, as well as a language that is used in inferring meaning from films. It is here that Worth proposes to study film as if it were a language--to delineate its elements and its logical structure. Although in such an examination it is not necessary to take a position on whether or not film is a language, in the linguistic sense, the importance of studying film in a linguistic manner lies in the fact that:

> . . . it would make it possible to determine if analytical procedures developed by linguists are applicable to other modes of communication and in precisely the same way. Accepting some precise definition of language enables us to consider film communication in a more systematic fashion and enables us to formulate theories and experiments about film communication in a manner logically consistent with work in other scientific fields (Worth, 1968, p. 132).

It is this linguistic approach to the study of film language that will now be considered.

A Psycholinguistic Approach to Film

Pryluck and Snow stress the need for the development of terms, categories, or propositions for analyzing the semantic and syntactic nature of film. Such an analysis is essential in understanding the educational objectives for which film may be uniquely or tangentially suited. But perhaps more importantly, without such a tool for analyzing film semantically and syntactically, there can be no scientific psychology of cinema communication (Pryluck and Snow, 1967, pp. 54-55).

Recognizing the need for a more specific, systematic, and refined approach to the study of film, the theoretical position of Sol Worth will be examined. It is in his attempt to study film as if it were a language that Worth has developed a metalanguage to be of use in film research. Before an examination of his specific jargon, however, his position on viewing film as "non-art" merits consideration.

Worth defines communication as human interaction through messages. More narrowly, visual communication involves the transmission of a signal received mainly through visual receptors, and recipients treat it as a message by inferring meaning from it. Specifically, film communication is defined as:

> . . . the transfer of an inferable meaning through the range of materials that film offers or does not offer as signals, and through elements and combinations of elements it allows or does not allow (Worth, 1966, p. 323).

These materials and elements have inherent constraints upon the signals we receive. For Worth, it is these materials, these elements, and constraints and their relation to the viewer's inferred meaning that must be examined. Worth considers the major question in film analysis to be: "What does a film mean? And how is someone able to infer this meaning?" (Worth, 1966, p. 323). Film has no meaning in itself, as the meaning of a film is a relationship between the implication of the filmmaker and the viewer's inference. Meaning is that which the viewer infers from the elements, units, and parts of a film.

Philosophers' attempts to analyze pictures have dated back some 2,300 years, and such pursuits were concerned with questions of evaluation (good/bad; beautiful/ugly; art/non-art), rather than questions of meaning. Within the past one hundred years there has been a more systematic attempt to consider the substantive questions involving pictures; yet behind this movement lies one fundamental assumption--all events can be analyzed aesthetically, and should be judged as good or bad, art or non-art. Worth rejects this evaluative approach, as the aestheticians have failed to offer a means of analyzing the messages that fall in between their good and bad, art and non-art. Hence, Worth proposes that we should begin to distinguish between the process of inferring meaning from messages, and the process of evaluating the messages.

Worth's model of communication begins with what he refers to as a feeling concern. Here, a communicator has a feeling, and an attendant concern to communicate it to others. Because this feeling concern is often imprecise, amorphorous and internalized, it cannot be transmitted to another in this state. Hence, a story-organism must be developed, this being an organic unit providing a vehicle that will carry the feeling concern. This story organism mediates between the feeling concern and the image-event, which is the actual film (Worth, 1966, p. 324).

It is apparent that reception in this process occurs in reverse order--the viewer sees the image-event, in which the film consists of a sequence of signals. From these he will be able to infer the story-organism, and in so doing become aware of the beliefs (the feeling concern) of the filmmaker. If the communication is effective, the viewer will then be able to evoke this feeling concern in himself. Meaning in a film, then, is one's inference about the director's feeling concern as evoked from these intentionally sequenced image-events. E. Kris similarly claims that art is seen as a process of communication and re-creation. For Kris, communication

> lies not so much in the prior intent of the artist as in the consequent re-creation by the audience of his work of art. What is required for communication therefore is similarity between the audience process and that of the artist (Worth, 1966, p. 329).

Worth concludes that the legitimate concern in film analysis should involve the properties, units, elements, and system of organization and structure of the image events.

Speaking from an aesthetic perspective, Eisner asserts that artistic expression proceeds by virtue of syntaxes, symbols, and media used by the artist. A prerequisite to experiencing an art form is the ability to "read" the form--to decode what has been encoded by the artist. The visual artist's task is to transform ideas, images, and feelings into an organization of "qualities" (direct sensory experience).

> These qualities are used as vehicles by the construction of morphemes, literally forms that are put together in composition. Morphemes are constructed and are subsequently composed. They function as symbols of the artist's experience; they are forms that convey or evoke the experience that is called art (Eisner, 1970, pp. 106-107).

Here Eisner is speaking from an artistic standpoint, yet resembling Worth very closely, whose major concern is the extraction of meaning from a message. Further, consider again Stephenson and Debrix's stages in artistic communication: the artist's experience, the expression of this experience through some medium, and the kindling of similar experience in the audience (Stephenson and Debrix, 1974, p. 19). They also coincide with Worth's notion of feeling concern, story-organism/image-event, and his final stage whereby the viewer infers the filmmaker's meaning from the image-event. Certain aesthetic and communication theorists, then, seem to have the same objective in mind: the extraction of meaning from a communication. It would indeed be naive to assume that the artist was not concerned with the transmission of meaning. But communication theorists, such as Worth, have gone beyond certain aesthetic theorists in that they have provided a more detailed framework for the analysis of such works.

According to Worth,

> Psycholinguistics studies those processes whereby the intentions of the speaker are formed into signals . . . and whereby signals are transformed into the interpretations of hearers (Worth, 1968, p. 131).

Within the cadre of psycholinguistics, it can be hypothesized that film is capable of being studied as if it were a visual language, as if it were possible to determine its elements and the logic of its structure. Here Worth coins the word vidistics, in an attempt to distinguish between the process of visual and verbal communication, and to maintain a connotation of the similarity that exists between the verbal and visual modes. Vidistics concerns itself with determining and describing visual elements of communication. Further, it deals with the determination of laws and logic of visual relationship that help a viewer in extracting meaning from an image-event, as well as from the interaction resulting from image-events presented in sequence.

> Film, as if it were a language, as studied vidistically, is thus thought of as the study of specified elements, elements

> in a sequence, operations on those elements, and cognitive representations of them that act as a mediating agent in a communication process between human beings--between a film-maker and a viewer--between a creator and a re-creator (Worth, 1966, p. 331).

While film researchers share the same concern as linguists in breaking messages down into units and classifying them, film theorists lack the background of comprehensive work that exists for written verbal and spoken languages. Worth then provides parameters that are a starting point in describing structural elements of film language, and which form the semantics of the language. These parameters are image in motion over time in space with sequence. (Sequence refers to a syntactic rather than a semantic dimension.) The image (shot) is the basic unit, or videme of the language, and Worth makes no attempt at defining the counterpart of a photographic "word" or "phoneme". While Eisenstein likewise maintained that the shot is the basic unit of film, Worth prefers to further divide the shot into an unedited camera shot (cademe) or an editing shot (edeme). While the edeme, formed by cutting the cademe and eliminating the unwanted portion, may not be the smallest perceptual unit, and may not have the greatest force in compelling the viewer to perceive signals, it nevertheless intuitively seems to be the place where coding and decoding begins (Worth, 1966, p. 332, and 1968, p. 134).

Motion and space are also parameters along which the videme is described. The changes in motion and space become part of the coding structure and cognitive "bits" that will allow the viewer to extract meaning from the movie. Motion can be measured both internally and externally. Internal motion involves movement of an object within the videme (fast, slow, left, right, up, down), while external motion is imposed on the videme by camera movement (pans, zooms, dollys, tilts) (Worth, 1968, pp. 134-135).

The parameter of space deals with the size and position of objects in regard to the spatial bounds of the screen. Examples of spatial arrangements are the long shot, medium shot, and the closeup (Worth, 1968, p. 135).

The parameter of time is related to the videme in motion and space and the sequence of edemes.

> That is, it is a function of the videme and a major operation performed upon the edeme and can be thought of as internal and real when it is a function of the videme, and external and apparent when it is a function of the sequence (Worth, 1968, p. 135).

Internal or real time refers to the actually measured time that it takes an actor to perform some action. It is the time of motion in one cademe. A videme is one continuous image-event, and when editing alters its continuity, it becomes a parameter of sequence, and hence external time. Such time is referred to as apparent, and the sense of time that we infer from the sequence of edemes is not necessarily related to the time of motion in objects on the screen. Unlike the internal time, external time cannot be measured with a stop watch--it is a kind of time sensation that arises, and from which we infer complete actions. As we never see the actions completely, we never know their precise duration.

For example, in a film revealing a sculptor making a statue, it is possible to indicate an hour's worth of work in a much shorter time.

Although it is conceivable to compose a film from a single cademe (camera shot), it is also possible that by separating the cademes into edemes, and adding other edemes, that the following sequence can be constructed:

15 seconds of sculptor working with clay
5 seconds of sculptor's face
15 seconds of sculptor working with clay
5 seconds of sculptor's hands
15 seconds of sculptor working with clay
5 seconds of sculptor's face.

This process of discarding large portions and adding other edemes can be continued for any length of time, but from such a sixty second sequence it is possible for the viewer to infer the complete action which in actuality had taken far longer. Although the viewer knows that time for the subject of the film has gone by, he cannot measure it (Worth, 1968, pp. 135-137).

While the parameters of image, motion, space and time concern the semantics of film analysis, the act of sequencing edemes can be seen as employing syntactic operations on them. Although this does not necessarily imply a code or grammar, Worth feels that it is possible to test visual communication along these lines. Sequence is used to give meaning to the relationship of sets of information, rather than to give order to the image-events. Worth's interest is in understanding the process by which meaning is transferred from a set of single edemes to a sequence of edemes (Worth, 1968, pp. 137-138).

In addition to Worth's linguistic procedure for the analysis of film, Pryluck and Snow are also film theorists approaching the problem of filmic analysis from a psycholinguistic frame of reference. An example of the close parallel between film and language can be found in their preliminary assumptions that have been based on findings in psycholinguistics. Originally presented by George Miller as cautions to psycholinguistic researchers, they have been altered slightly by Pryluck and Snow to pertain to film research.

According to Miller	According to Pryluck and Snow
Not all physical features of speech are significant for vocal communication, and not all significant features of speech have a physical representation.	Not all physical features of film are significant for cinematic communication, and not all significant features of film have a physical representation.
The meaning of an utterance is not a linear sum of the meaning of the words that comprise it.	The meaning of a film sequence is not a linear sum of the meanings of the scenes that comprise it.
The syntactic structure of a sentence imposes groupings that govern the interactions between the meanings of the words in that sentence.	The syntactic structure of a film sequence imposes groupings that govern the interactions between the meanings of the scenes in that sequence.
There is no limit to the number of sentences or the number of meanings that can be expressed. (Miller, 1965, pp. 17-18).	There is no limit to the number of film sequences or the number of meanings that can be expressed. (Pryluck and Snow, 1967, p. 77).

Pryluck and Snow go on to describe other concepts in linguistics that may have utility in the consideration of film structure. Such concepts could perhaps be used in outlining similarities and differences between verbal languages and film, thus suggesting variables for manipulation. For example, semantic ambiguity occurs when a phrase or sentence does not fully reveal specific meanings of the words included, or when a word is out of context. Words, for instance, are perceived more accurately when they are couched in spoken sentences. As this sort of ambiguity can exist in motion pictures, Pryluck and Snow feel that it may be of value to study differences in scene meaning as a function of sequence context (Pryluck and Snow, 1967, p. 68).

In spite of the fact that Osgood's congruity principle is not a linguistic tool, Pryluck and Snow find it a useful analytical device. Briefly, the principle states that when two signs are related by an assertion, the semantic character of each of the signs shifts toward congruence with the semantic character of the other sign, although there is a lesser shift in the more meaningful sign. Moreover, Osgood postulates that the assertion relating the two signs in a semantic system may not only be verbal, but also visual-perceptual. Perhaps such relations exist between signs within a scene as well as between scenes within a sequence. Pryluck and Snow feel that the presence of congruity or incongruity between scenes may be an important structural device in films (Pryluck and Snow, 1967, pp. 68-69).

Osgood and Sebeok (1954, p. 180) note that a problem of consideration for linguists, psychologists, as well as students in the humanities involves how the meanings of combinations of signs relate to the meanings of their components. They wonder, for example, if analogies exist between combinations of signs and the laws of color mixtures. Just as a mixture of complementary colors will cancel each other toward a neutral grey, will a combination of words of opposite meaning tend toward a meaningless result? Further, just as the hues of mixtures must always lie between primaries (e.g. red and green render yellow), will the point in semantic space representing a CAT-LIKE WRESTLER fall on a line between the points representing CAT-LIKE and WRESTLER?

> In color space, any mixture must fall on the line connecting the components--will this be true for ordinary word mixtures? Would STRONG POWER, perhaps lie FURTHER away from the origin than either mixture of the components? (Osgood and Sebeok, 1954, p. 181).

They wonder, in short, if there are any general laws governing the semantic combinations. Cliff (1959, p. 27-28) points out that while Osgood's major concern is with adjective-noun combinations, adverb-adjective combinations (e.g., "very bad") may also be subject to certain laws. To determine how meanings of words relate to combinations of words, Osgood and Sebeok propose that subjects test words alone and then in combinations.

Relating this linguistic concern to filmic analysis, one might likewise consider how a sequence of visuals relates to the meaning of the visuals constituting the sequence. Will shots opposite in meaning, for example, tend toward a meaningless result, or will the meaning of a sequence be more affected by one of the shots within the sequence?

In summary, many theorists attempting to develop grammars of the film have met with disagreement in regard to the units of analysis, and their parallels with the units of analysis in verbal communication. On a more general level, one even detects lack of consensus as to whether film is more like poetry or prose, spoken or internal speech. Recognizing the need for a more specific, systematic, and refined approach to the study of film, certain theorists (Worth, Pryluck, and Snow) have attempted to approach the study of film as if it were a language. Such an approach, they feel, may have tremendous theoretical utility in the questions it can generate for research. Furthermore, this approach is thought to be of heuristic import, regardless of the ultimate validity of the notion that film is a language. A consideration will now be given to specific research on sequence.

Montage: Research on Sequence

While some might argue for psycholinguists' confining their study to an examination of isolated words, thus avoiding the complexities of sentences, Miller cautions that such an approach would be appropriate only if words were independent units that combine in a simple fashion.

> If the meaning of a sentence could in some sense be regarded as the weighted sum of the meanings of the words that comprise it, then once we knew how to characterize the meanings of the individual words, it would be a simple matter to determine the meaning of any combination of words. Unfortunately, however, language is not so simple; a Venetian blind is not the same thing as a blind Venetian (Miller, 1965, p. 16).

Miller maintains that the significance of a sentence is not the linear sum of the significance of the words which compose it. The "pen" in "play pen" and in "fountain pen", even though they are orthographically and acoustically identical, are nevertheless very different pens. It appears, then, that the words in a sentence interact, and meaning becomes a function of the context in which a word occurs. While meanings assigned to combinations of words can be characterized in an orderly manner, they nevertheless do not follow a simple rule of linear addition. Hence, Miller calls for a more detailed description of the different ways words interact in combinations.

Similarly, Kuleshov contends that film art begins, not in the shooting, but in the combining of pieces of film. Literally, montage refers to the assembling of a composite by combining elements through superimposition, overlapping, and other techniques. Such an activity is in contrast to the production of a collage, wherein fragments are glued together to produce some overall effect. A montage done poorly is in fact a collage (Weiss, 1975, p. 74).

According to Eisenstein, ". . . two film pieces of any kind, placed together, inevitably combine into a new concept, a new quality, arising out of that juxtaposition" (Eisenstein, 1947, p. 4). Further, Eisenstein reminds the reader that this phenomenon is not peculiar to the film, but occurs invariably whenever one deals with the juxtaposition of two facts or objects. The deductive generalization that occurs when separate objects are placed side by side in front of an individual becomes an automatic response.

Isenhour (1975) presents a description of the research on the simple juxtaposition of silent film shots, joined by a cut. In the Kuleshov-Pudovkin study (1958), closeups of an actor who allegedly expressed no feeling whatsoever were placed next to shots of a bowl of soup, a dead woman in a coffin, and a child playing. In referring to these respective sequences, the audience judged the actor's expression to be pensive, sorrowful, and reflecting a light, happy smile. (The viewers then went on to rave about the acting!) Thus, the meaning of a shot appears to vary with its context (Isenhour, 1975, pp. 69-70).

Pudovkin (1958) also demonstrated how the meaning of a shot varies with order. Using two sequences of three close-ups, one sequence presented a man smiling, then a shot of a painted pistol, and lastly a man with a frightened look. The man, of course, seemed to be afraid of the gun. Reversing the shots and presenting the frightened man, the pistol, and then the smiling man, resulted in an interpretation of the man as brave. Hence, meaning is altered through changing the order of shots (Isenhour, 1975, p. 70).

H. G. Goldberg (1951) tested the responses to two four-shot sequences. One film contained the following shots, in this order: (1) little boy riding a tricycle, (2) foot stepping on the brake, (3) a motionless car tire, (4) a screaming woman. The second film included: (1) the same shot of the little boy on a tricycle, (2) the boy stopping the tricycle and putting a toy on his head, (3) a man laughing, (4) the same shot of the woman screaming. In studying the change of meaning for the identical last shot of the screaming woman, Goldberg found a significant variation between the first film (fear) and the second film (less fear). This variation he attributed to context (Isenhour, 1975, p. 70).

J. Kuiper (1958) compared subjects' responses to three sequences, each containing four shots, wherein only the third shot varied. All sequences presented: (1) a man walking into the frame in a medium shot, (2) a closeup of this man looking out of the frame, (4) a closeup of a man in the first two shots looking into the camera with a neutral expression. In each sequence, the third shot varied between (a) a friendly girl in a bathing suit, (b) a small child turning toward the camera,

(c) a man being hit by a car. In judging the final shot (man with a neutral expression), Kuiper found that its meaning varied significantly with the different films, and thus Kuiper also concluded that the meaning of a single shot is a function of the context into which it is placed during editing (Isenhour, 1975, pp. 70-71).

E. Foley (1966) investigated shifts in a shot's meaning that are caused by changing the shot that precedes it (Kuiper and Goldberg) or the shot following it (Pudovkin). Foley's study confirmed the findings of Pudovkin, Goldberg, and Kuiper, determining that a shot's meaning is indeed a function of the shot that precedes or follows it (context). In that many of the shots in his test films were the same, Foley could examine the change in meaning when two shots change order. He observed the difference between the meaning, for example, of a sequence wherein a closeup of a man was followed by a friendly girl, as compared to the sequence of a friendly girl followed by the closeup of a man. Studying these reversals, he concluded that how one perceives a facial expression is significantly affected by reversing the order of the closeup and the contextual shots. Foley concluded, then, that order and the context will influence how the audience will perceive a facial expression (Isenhour, 1975, p. 72).

It is Gregory's position that language grammar and film editing share common psychological principles. In the English language, for example, changes in meaning are brought about by changes in word-sequences rather than changes in words themselves (as in Russian). Likewise, film meaning is a function of the sequencing of scenes.

> Each scene as photographed was viewed as creating a set of meanings ("a thesaurus") from which the editor could choose meanings ("words") to include in the edited sequence (Pryluck, 1968, p. 373).

Gregory holds that an assertion is formed when two adjacent shots are bound by associative cues. Cues refer to the visual kinetic or semantic elements in shots, and cues having common characteristics become associated. For example, if one shot presents a man raising a hammer, and the next presents a hammer striking a nail, the two shots will be connected by an assertion. Here spatial change alone, where an action begun in one shot and continued through the next, is enough to connect these shots, as kinetic cues have been provided.

Semantic cues that would associate shots are concerned with the visual elements within the shots. If a particular room is presented in two adjacent shots, and the viewer sees many of the same articles around the room in both shots, the natural assertion would be that the two shots were taken in the same room.

Unlike Gregory, Isenhour claims that such associative cues do not have to exist for an assertion to be formed, and in support of this, he refers to Eisenstein's contention that any two pieces of film, when juxtaposed, will combine to form a new concept. The existence of these associative cues, however, serves to strengthen the assertion that is formed from the juxtaposition of shots (Isenhour, 1975, pp. 74-75).

Following Osgood's congruity principle, Isenhour postulated that when two shots are related by an assertion from juxtaposition, the meaning of the shots shift toward equality with each other. Further, the degree of a shot's change in meaning will be inversely proportional to the intensity of its initial meaning. An example is given, involving a shot of Hitler, to which most Americans would have a very negative reaction. The meaning of this shot remains stable until it is juxtaposed with another, forcing them into an interaction. If Hitler were juxtaposed to an unknown German soldier, the meaning of the soldier's shot would lack the intensity that Hitler's evoked. In placing the two shots next to each other, they become related by an assertion, and the meaning that was unique to each shot will alter. The meaning of the shot of Hitler will change only slightly, however, as its intensity is so great. The low intensity shot of the soldier, in being connected with the high intensity shot of Hitler, will experience a major shift toward equality of intensity with the connotation of Hitler. The soldier will appear more evil, then, when juxtaposed with Hitler. Isenhour cites support for this in Kuleshov and Pudovkin's experiment, where the neutral face of a man was interpreted as sorrowful after juxtaposition to the highly intense shot of the dead woman in a coffin (Isenhour, 1975, pp. 75-76).

In integrating these experiments, Isenhour employs a shorthand developed by Worth. Where A and B represent the juxtaposition of shots A and B, Pudovkin found that in sequence A_1B and A_2C (where A_1 and A_2 are identical), A_1 and A_2 are interpreted differently by the viewer.

Goldberg and Kuiper found that in sequence B,A_1 and C,A_2 (where A_1 and A_2 are the same shot), A_1 was interpreted differently from A_2.

Foley's findings were the same as above. In addition he indicates that sequence AB differs in meaning from sequence BA. To refine what has been said in regard to this order, however, we must add that if shot

A is very intense and B is neutral, the meaning of A will hardly be affected by a change in the ordering of the shots. Thus, BA is almost equal in meaning to AB if either A or B is a good deal more intense than the other. Hence, presenting the order of a shot of a soldier and then a shot of Hitler would be equivalent to presenting Hitler first and then the soldier (Isenhour, 1975, pp. 72-77).

In summary, there exists a need to study film more precisely--as if it were a language. Just as sequence is a major dimension in the study of a verbal language, sequencing shots is a major consideration in filmic communication. Bazin (What is Cinema?) claims that it is this ordering of shots that created film language. What various sorts of montages have in common is their capacity to create meaning not inherent in the images *per se*, but in the juxtaposition of images. Indeed, " . . . the final significance of the film was to be found in the ordering of these elements much more than in their objective content" (Bazin, 1974, p. 25). Related to film montage and sequencing is the increasingly more popular phenomenon of *multiple image*--the simultaneous projection of at least two visual images.

Multiple Image

While the simultaneous presentation of multiple images with audio is thought to have had its beginnings in 1927 when Claude Autant-Lara of France used it to depict a gold hunting expedition (Trohanis, 1975, p. 398), the inception of the idea of multiple image can perhaps be traced back as far as *Birth of a Nation* (1915), where D. W. Griffith made use of the "iris" to introduce key elements in a scene. After indicating a rather small point on the screen, the spot gradually expanded to include additional elements, revealing a larger composition in which the beginning element was central. In 1916 his Intolerance employed a number of masks for directing the audience's attention to selected areas of the screen. During the mid 1920's, Able Gance divided the screen into permanent separations, and for emphasis projected parallel sequences on each screen at the same time.

It was in 1939 that "Vitarama" was introduced at the World's Fair by Eastman Kodak, extending the concept of multiple image to a three screen display. Less than a decade later, Life magazine developed "Picturama", a multiple image presentation of America's lifestyle. By the mid 1950's the Disney Studios introduced "Circarama", a display for American Motors, using eleven screens in a circle forty feet in diameter, with sixteen millimeter filmed images projected synchronously.

To exemplify the complexity in the use of multiple image, Moscow's "Kinopanarama" (1959) used twenty-two screens arranged in two circular layers of eleven each.

> . . . the lower screens were twelve feet high and eight and a half feet above the floor, and the upper screens, tipped at a fifty-nine degree angle, rose some thirteen feet above the lower screens. The whole array was over ninety feet in diameter and displayed in a two-minute sequence to a standing audience of 300 people. When viewing many images presented simultaneously, a Russian film critic pointed out, "the viewer becomes the author of the montage and directs his attention to those segments which interest him the most" (Cooney and Allen, 1964, p. 306).

As a final remarkable example, K. Isaacs, at the Illinois Institute of Technology, devised "Matrix", a twelve foot enclosed cube, using twenty-four slide projectors to project four images on each of the six inside surfaces (Cooney and Allen, 1964, p. 307).

Since its beginnings, multiple image has been made an integral part of instruction in a number of schools and universities. Advantages of using multiple image include the simultaneous presentation of a subject from different distances and angles, the simultaneous presentation of various time segments of events in a sequence, the juxtaposed comparison of contradictory lines of action or mood, the elaboration of a visual through repetition of identical images, and reinforcement of a point through the presentation of mutually supporting images. Further, the impact of the wide screen is said to increase the "you-are-there" feeling (Kuo, 1972, p. 83).

Through simultaneous presentation, comparisons and contrasts are more readily made as the images are viewed side by side, as it is in such a presentation that viewers do not have to recall the previous image. Relationships of parts to a whole may also be shown more readily, or the inter-relationships of topics can be revealed with the use of multiple image. While no evidence substantiates the claim, it is thought that continuity may be improved through use of multiple image by changing only one image at a time. The unchanged visuals then appear to be related to current and previous visuals that have been changed (Stonge, August 1977, p. 2). Multiple image is thought to provide a visual enrichment not normally possible with single images. It has often been used in areas of affective education, to set moods, to present viewpoints, and to increase social awareness.

As stated in the *Visual Literacy Newsletter*, theorists enumerating alleged advantages of multiple image are not in total agreement on these advantages. Hence, an examination of the area of multiple image in in order, as any idea portending to increase visual literacy requires a thorough examination to ensure its efficacy. Further, use of multi-images is relatively expensive, and cost-effectiveness must be considered (Stonge, April 1977, p. 1).

Justification for an examination of a comparison of sequencing in both traditionally serially presented film shots and the simultaneously presented visuals of multiple image is reflected in the following quote by Jack Debes:

> If *you* were to make a guess, around which concept or question do you think the most significant research in visual languaging will be focused during the next ten years? . . . My vote goes to *sequence* . . . Neurophysiological and electroencephalographic researchers are focusing on behaviors or evidence that reveals the consequences of the omnipresence of visual sequential messages in the environment. Awareness that the elicited responses are so affected is clearly rising. . . . Linguists, tearing at the carcasses of traditional paradigms for "language" are scrutinizing the arrangements of signs that are the result of sequencing behaviors and are asking, "Are these artifacts of language?" Acceptance of visual signs in sequence as language is growing; that acceptance paves the road to the new paradigm for language (Stonge, May 1977, p. 2).

While Goldstein feels that an important approach in current perceptual theory is the study of comparisons between simultaneously and sequentially presented images, he goes on to state that little research exists in this area, and the results that do exist are equivocal (Goldstein, 1975, p. 35). Perrin (1969, p. 368) adds that while producers have designed multi-image presentations quite skillfully, an underlying theory is yet to be verbalized.

In his article "The Perception of Multiple Images", Goldstein considers the problem of specifying the meaning of a visual sequence of multiple images. This question of meaning through sequencing is the same area of concern that has been the target of sequential film theorists for years, as will be seen in the next section of this review. According to Goldstein, just as sentences are more than the totality of their parts, so also a sequence of visuals is more than the sum of its constituent images.

> That there is a "grammar" or "language" of film has long been assumed . . . but it is only recently that attempts have been made to discover how this language might operate. It may make little sense to talk in terms of the information contained in a single picture if what is important to the observer is the meaning transmitted in a number of pictures ordered in a specific sequence (Goldstein, 1975, pp. 62-63).

While film language encompasses both a consideration of sequentially and simultaneously presented images, a question still remains as to the degree of difference in the effect of presentation between shots viewed singularly and shots viewed simultaneously. The difference in learning between material presented simultaneously and sequentially has already been examined on the level of an entire production (Trohanis, 1975). Yet a study on the level of the meaning of a _single_ _shot_ within a short sequence has not been found in the literature.

Why should one suspect a difference in the interpretation of a shot presented in a sequential series as opposed to a simultaneous series? According to Perrin, films, television, slides, and filmstrips have provided the viewer with a sequential montage, where the meaning of each new shot is determined by the antecedent shots. Temporally, sequential montage is comparable to verbal language, as several elements in a series will determine the final meaning. On the other hand, images presented simultaneously interact on one another at the same time, thus being quite valuable in making comparisons and in determining relationships. Citing Low, of the Canadian Nation Film Board's *Labyrinth* at Expo 67, Perrin writes:

> Perhaps no single impression triggers certain memory combinations, but a group of impressions received simultaneously often may trigger long forgotten memories. Emotions also seem totally mysterious in the way they come and go. Poetry uses an amalgam of thoughts, feelings, words and images poured in quick succession as an assault on the unconscious. Some poets seem impatient with the sequential quality of words and phrases and compress language in what seems to be an effort to achieve a kind of simultaneity. Roman Kroiter speaks of multi-screen being to single screen what the language of poetry is to the language of prose (Perrin, 1969, p. 370).

In summary, while sequence in serially and simultaneously presented visuals are both aspects of film language, no study compared the meaning of specific shots within a short sequence presented simultaneously and serially. Hence, this study dealt with the presentation of two identical series of shots, one sequentially and one simultaneously, and compared the meaning of a specific shot within each series, or the meaning of a two-shot series as a whole. One means of measuring such differences has been through use of the semantic differential.

Semantic Differential

All stimuli are not necessarily signs. For example, a shock that triggers a rat into escape movements does not stand for anything other than itself. The problem faced by meaning theorists becomes one of differentiating conditions under which a pattern of stimulation is a sign for something, from conditions where such a stimulus does not represent anything else (Osgood, 1952, p. 200).

It should be realized that the pattern of stimulation constituting the sign is never identical with the pattern of stimulation which is the object. While a picture of a child is not the same as the child himself, a photograph of a child may nevertheless elicit behaviors which are in some way relevant to the child that it signifies. This characteristic is not shared by countless other stimulus patterns that are not signs of the child. Osgood then poses the question, what conditions must exist for something that is not the object to become a sign of that object?

Meanings are mental events, while the stimuli representing them are physical events. A theory of meaning, then, must examine the interrelationship between the physical and the mental.

> At the core of all mentalistic views, therefore, we find an "idea" as the essence of meaning; it is this mental event which links or relates the two different physical events, sign and object (Osgood, 1952, p. 201).

The picture of a hammer, or the word "hammer", gives rise to the idea of the object in the mind--"something which is not the object gives rise to the idea associated with the object" (Osgood, 1952, p. 201). Citing

Ogden and Richard's The Meaning of Meaning, Osgood describes the triangular diagram of the sign process, where the relation between symbol and referent (the triangle's base) is not direct but inferred. The relation is mediated through thought or interpretation, represented by the third corner of the triangle.

Relating this notion to the present question under examination, two events can be represented symbolically through juxtaposing photographs, as done in slide presentations, multiple image presentations, and motion pictures. These symbolic visual representations are not identical with the pattern of stimuli which are the events themselves. In this study, the patterns of stimuli are neither identical with each other, as juxtaposition in one condition is done simultaneously, and in the other sequentially.

Seeing a gun and a man in reality leads to a certain response, perhaps the arousal of fear. These visual presentations, done both sequentially and simultaneously, become symbols. The relation between the symbol and the referent (the photographs and the actual man-gun event) is mediated through thought or interpretation. While it is realized that the actual man-gun event is not exactly the same as the visual symbolic presentation of the man-gun event, this study is concerned with the nuances in meaning of the man-gun event presented simultaneously and sequentially. How alike are the mediating reactions to these visual stimuli? How alike is the phenomenological experience of these visual stimuli?

One way of comparing the meaning arising from the presentations of such stimuli is through use of the semantic differential, which provides a means of measuring the psychological meaning of concepts. Developed by Osgood, the semantic differential assesses the connotative meaning of concepts as points in "semantic space" (Kerlinger, 1973, p. 566). While the denotative meaning of a concept is its socially accepted definition, the connotative meaning refers to its emotional and evaluative meaning (Morgan and King, 1966, p. 176).

Free responses to the subtle variations between such highly similar stimuli as were employed in this study would be too difficult to articulate. The question of sensitivity in regard to whether or not the semantic differential is capable of reflecting the fine distinctions in meaning as an individual would ordinarily make is dealt with by Osgood.

> We have incidental evidence that a Semantic Differential can tease out nuances in meaning which are clearly felt but hard to verbalize deliberately. If there is a real difference between the meaning of two signs, such that they would not be used in precisely the same contexts, and if our measuring instrument includes a sufficient number of distinctions of the semantic space, then a significant difference should appear on at least one of the scales (Osgood, 1952, pp. 230-231).

Principles behind the semantic differential methodology include the following:

1. Whatever the number and variety of bipolar adjective scales used, the ratings are largely a function of a few dimensions of judgment.
2. These dimensions are meaningfully related to affect.

3. It is possible to employ only a few scales to obtain reliable measurements on any one dimension.

4. Measurements made on a given dimension can be compared to stimuli of very different character (words, colors, sounds, etc.) (Heise, 1965, p. 1).

An example of a semantic differential scale of the evaluative dimension is:

Good ___ ___ ___ ___ ___ ___ ___ Bad
1 2 3 4 5 6 7

Usually *4* is labeled "neutral", positions *3* and *5* are "slightly", positions *2* and *6* are "quite", and positions *1* and *7* are "extremely". A seven point scale is used, as early research conducted by Osgood and his colleagues, as well as by Miller (1956), indicates that not many more than seven discriminations can be made simultaneously (Heise, 1969, p. 406).

The purpose of the semantic differential, then, is to analyze concepts in terms of a limited number of dimensions of meaning--Evaluative, Potency, Activity. Comparing profiles for the stimuli responded to will reveal its position on the scale. To the degree that these profiles resemble each other, the connotative meaning of these presentations are the same. Conversely, the extent of their difference corresponds to the extent of their difference in connotative meaning (Morgan and King, 1966, p. 78).

In regard to comparing concepts through use of this instrument, Osgood claims that to the extent that judgments of different concepts involve the same factor structure, any concept can be compared with any other concept against a standardized semantic framework (Osgood, 1952, p. 321). Traditionally, concepts rated on this instrument have usually been presented as words. In support of the legitimacy of using the semantic differential to compare pictorial stimuli, Friedman, Johnson, and Fode (1969, p. 537 and 543) used a thirty-scale form of this instrument to obtain data on the stimulus properties of TAT cards, which have been used to study mood and emotional tone. These researchers found that the subjects' ratings of the TAT pictorials followed an orderly pattern, yet there was sufficient variation in consensual adjective descriptors to suggest that relatively fine distinctions can be elicited through administration of the semantic differential.

CHAPTER III

STATEMENT OF THE PROBLEM

This chapter will present the problem, the hypotheses, and definitions of key terms.

The Problem

Studying film with the same specificity that one would employ in approaching a study of language may be of value in determining how a viewer extracts meaning from sequences of shots within a film. For example, just as many linguists are seeking a detailed description of the ways in which words interact in combinations, so recent film theorists are calling for a more precise study of the interaction of shots. Just as the meaning of a word is a function of the words surrounding it, studies in the juxtaposition of images indicate that the meaning of a single shot is a function of its context--the shots preceding it and the shots following it.

It is legitimate to regard the increasingly more popular multiple image presentations as involving languaging also. Both film and multiple image presentations share the language dimension of sequencing, and the creation of meaning through juxtaposition. The difference between sequencing in multiple image presentations and in film is that in the former, sequencing is accomplished simultaneously, while in the latter it is accomplished serially.

It will be assumed that a distinction can indeed be made between that which is simultaneous and that which is sequential, in spite of the fact that some have maintained that what is referred to as simultaneous is in fact sequential. Cooney and Allen (1964, p. 313) deal with this question by citing Buswell's demonstration, which concluded that although the perceptual process is very rapid, it is nevertheless sequential. Cooney and Allen remind the reader, however, that the rate of scanning is sufficiently rapid to support a distinction between that which is sequential and that which is simultaneous.

Former studies in juxtaposition have dealt with the interpretation of shots within varying contexts for sequentially presented images. Because perception entails continual scanning, fixating, constructing scenes from parts of scenes, interpreting, and remembering (Goldstein, 1975, p. 59), and because during simultaneous presentations an individual is allowed to re-scan, relate, and re-associate visuals, it is assumed that the perception and interpretation of simultaneously presented visuals could differ in some degree from the perception of serially presented visuals, where accumulation takes place only in the viewer's memory.

Specific questions can be posed that relate to the literature review. According to research conducted by Pudovkin, Goldberg, Foley, Kuiper, and Isenhour, a visual (e.g., a face) will take on a quality of expression depending on the context of the shots in which it is presented. According to Arnheim (1974, p. 91), juxtaposition of montage used for contrast occurs when an event makes an even greater impression by having its opposite cut into it. For example, a shot of a starving man may be presented with a shot of extreme wealth. Perrin (1969, p. 369) strongly suggests that for visual comparison, images presented simultaneously are more effective than images presented sequentially. Lastly, Osgood and Sebeok (1954, pp. 180-181) describe a method for measuring the relationship between a combination of signs and its components, that appears applicable to pictorial combinations. From this related literature stem the following questions:

1. Is there a difference between the meaning of a shot presented in a series of sequentially viewed images, and the meaning of the same shot presented in a group of simultaneously viewed images?
2. Is there a difference in the meaning of a shot presented within a context, and singly?
3. Does the impact of a comparative or contrasting two-shot sequence presented simultaneously have a somewhat different meaning than the same two-shot sequence presented serially?
4. How does the meaning of a sequence as a whole relate to its constituent visuals?

The present study is related to former research in its concern for the study of meaning created through juxtaposition. It differs from former research in its reference to a comparison between simultaneous and sequential presentations on the fundamental level of two-shot juxtapositions. The questions presented as problems for research have led to the hypotheses which follow.

Hypotheses

1. When juxtaposing a single action shot with a single reaction shot of a face, there will be a significant difference in the meaning of the face when juxtaposition is done sequentially, compared to its meaning when juxtaposition is presented simultaneously.

2. When juxtaposing (both simultaneously and sequentially) a single action shot with a single reaction shot of a face, there will be a significant difference in the meaning of the face, compared to its meaning when presented singly (unjuxtaposed with another shot).

3. When juxtaposing a pair of action-reaction, comparative, or contrasting shots, there will be a significant difference in the meaning of the pair when juxtaposition is done sequentially, compared to its meaning when juxtaposition of the pair is presented simultaneously.

As a final question for investigation: Is there a significant difference between the meaning of a sequence as a whole and the meanings of the visuals constituting the sequence but presented singly? For example, does one of the visuals affect the meaning of the sequence as a whole more than the other visual in the pair?

Definitions of Key Terms

Sequential or Serial Presentation. One slide is projected, then it disappears, and a second slide appears in its place, following the normal cycle of a projector.

Simultaneous Presentation. Two slides appear side by side at the same time, and disappear at the same time.

Connotative Meaning. Connotative meaning refers to the ratings assigned to a visual on the scales of the Evaluative, Potency, and Activity dimensions of the semantic differential.

CHAPTER IV

METHODOLOGY

This chapter will be divided into the following five sections: the measuring instrument, the stimulus materials, the subjects, the experimental design, and the procedure.

Measuring Instrument

Visuals were presented to the subjects, who rated these stimuli on eleven scales of bipolar adjective pairs of the semantic differential. Scales were used that were found to cluster into all three factors of the semantic differential in other studies--Evaluative (expressing the goodness or badness of the visual), Potency (expressing strength or weakness), and Activity (expressing motion or action) (Kerlinger, 1973, p. 569). Using Osgood (1962), Jenkins (1958), and Miron (1969), fourteen bipolar adjective scales were selected for the three dimensions in regard to their relevance and to their factor loadings. The author also added "detached-concerned" and "jealous-trusting", because they seemed especially applicable to the experimental stimuli. Due to pragmatic considerations (see Chapter V), the number of scales was reduced, so that only the following scales (plus "detached-concerned") were presented to the subjects:

EVALUATIVE	POTENCY	ACTIVITY
Good-Bad	Heavy-Light	Fast-Slow
Mild-Harsh	Wild-Tame	Active-Passive
	Hard-Soft	Hot-Cold
	Serious-Frivolous	Cheerful-Lonely

The order of presentation of the scales was rotated across categories (Evaluative, Potency, and Activity), but the order remained the same for all subjects. The adjective order of every other scale was reversed to prevent response bias (see Appendix B).

Stimulus Materials

Thirty-two colored slides, constituting sixteen pairs, were copied from pictures in various magazines (see Appendix A). Selection of stimuli was based on the literature's indication of the advantages of simultaneous presentation. As multiple image is thought to lend itself to the effective display of action and reaction (Perrin, 1969, p. 370), a group of stimuli was presented wherein the first shot revealed some physical action and the second shot presented a face as a reaction. Because multiple image lends itself to the presentation not only of reactions, but also of comparisons and contrasts (Perrin, 1969, pp. 369-370), and because consideration of montage or sequencing often involves concern for the meaning of a whole sequence, the subjects rated two-shot sequences of both action-reaction visuals, and rated contrasting or comparative shots.

The stimuli were divided into two sets.

Set I: Action shots were juxtaposed to faces (see pairs A, B, C, D, E, F, G, and H of Appendix A). These stimuli were used to test the first and second hypotheses. The order of these pairs of stimuli was randomized for each presentation (see Table 1).

Set II: Stimuli in this group formed eight two-shot series, wherein action-reactions (pairs I, N, P) or contrasts (pairs J, L, M, O) and comparisons (pair K) could be seen. These were used in testing the third hypotheses and final question. The order of these pairs of stimuli was randomized for each presentation.

Subjects

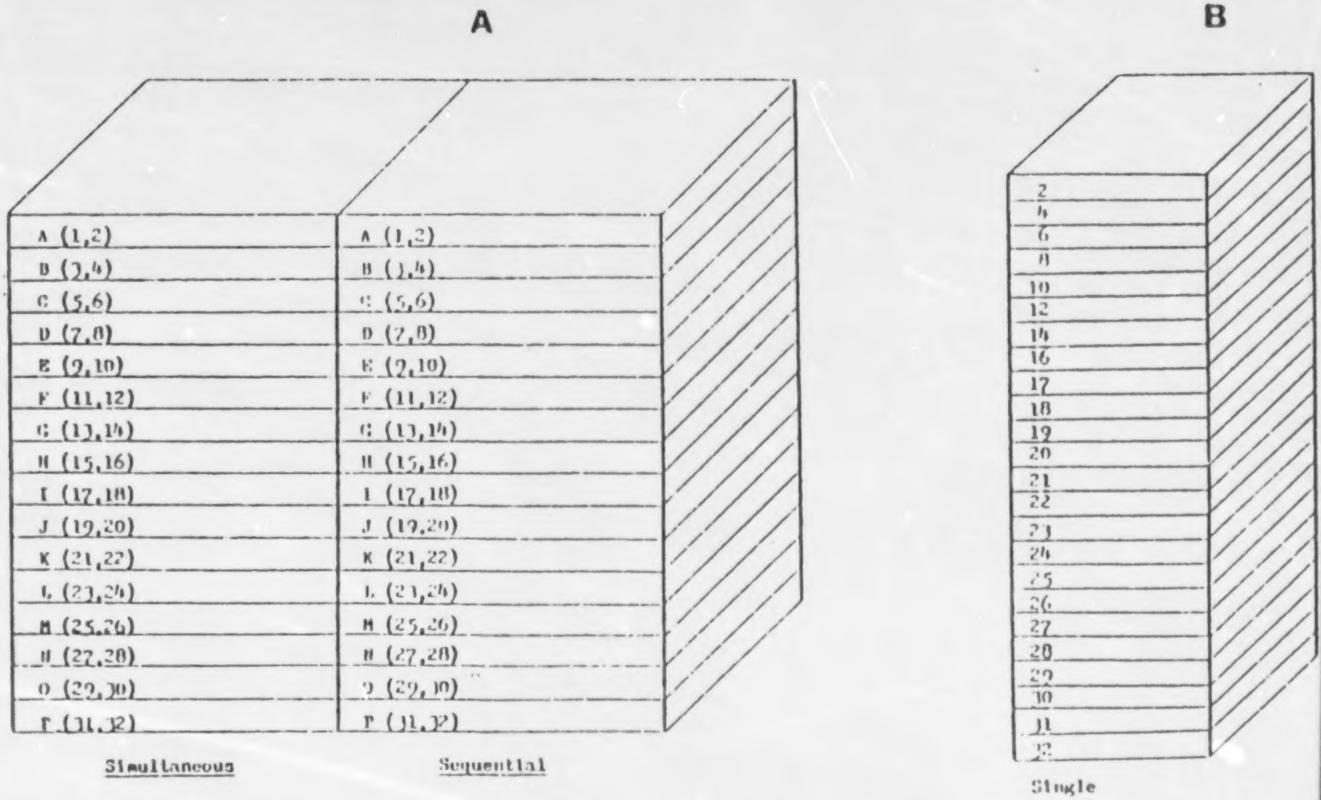
Maladin found that younger children could not relate successive images logically, and concluded that they may have some difficulty in interpreting sequential presentations (Cooney and Allen, 1964, p. 310). For this reason, fifty-nine adult subjects between the ages of eighteen and fifty-five years were taken from the Language and Communications classrooms of Thornton Community College in Harvey, Illinois. Ratings from ten subjects had to be eliminated. Eight of these were discarded because they were absent for one of the two juxtaposed conditions, and two were disqualified because they had filled out the blanks incorrectly by skipping blocks of adjective scales. Of the thirty-two remaining raters in the juxtaposed conditions, nineteen were female and thirteen were male. The seventeen other subjects (eight female, nine male) rated stimuli presented singly.

As the experimenter was assigned to specific classrooms within the college, a random selection of subjects was not possible. As only intact classes were available, there was no selection of subjects into groups. However, treatments were randomly assigned to the intact groups.

Experimental Design

This experimental design included two stimulus dimensions--simultaneous juxtaposition and sequential juxtaposition. Another group of individuals rated the stimuli on the same eleven scales, but viewed them singly, not in juxtapositions (see Figure 1).

The cells represent the individuals' responses to the stimuli as recorded on scales of the semantic differential. The letters and numbers represent each pair of stimuli. For example, A(1,2) indicates that pair A is made up of visuals numbered one and two. The cells in block B represent ratings for stimuli presented singly.


A
B
A (1,2)
B (3,4)
C (5,6)
D (7,8)
E (9,10)
F (11,12)
G (13,14)
H (15,16)
I (17,18)
J (19,20)
K (21,22)
L (23,24)
M (25,26)
N (27,28)
O (29,30)
P (31,32)
Simultaneous
Sequential
2
4
6
8
10
12
14
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
Single

(Set I - pairs A through H)
(Set II - pairs I through P)

Figure 1. Experimental Design

According to the hypotheses, a significant difference was expected between the responses to Set I of the simultaneous and sequential conditions. A significant difference was also expected between ratings in Set I of the simultaneous and sequential conditions combined, and the scores for the corresponding stimuli in block B, where ratings were made singly. Specifically, stimuli 2, 4, 6, 8, 10, 12, 14, and 16 were predicted to be significantly different in meaning, depending upon whether they were presented in the simultaneous, the sequential, or the single condition.

Similarly, it was anticipated that ratings of each of the eight pairs as a whole in Set II would be significantly different, when comparing the cells of the simultaneous condition with the same cells of the sequential condition. Finally, an examination was made in regard to whether the ratings of any of the pairs as a whole tended to resemble one of the separate shots that constituted each pair more than the other, as found in the ratings in block B.

While it was realized that exposing the subjects to each pair of stimuli twice could introduce some degree of pretest sensitization (Kerlinger, 1973, p. 362), it was nevertheless felt that a design wherein the subject was used as his own control would yield a stronger relational statement than one which exposed separate groups to separate treatments. It is thought that this pretest bias was in some degree reduced by counterbalancing the simultaneous and sequential presentations on different days. While subjects may not have forgotten the stimuli to which they had been exposed, it was expected that a recollection of their initial ratings for specific stimuli would have faded.

Procedure

The stimuli were presented in a group format. The subjects rated stimuli in a viewing room adjacent to their regular classroom. Two Kodak Ektagraphic projectors were placed eighteen feet from the screen. Desks were arranged so that each subject had an unobstructed view of the screen. While Lebo and Sherry (1959) suggested that viewing angle and distance from the screen might weaken the effectiveness of group presentation, Friedman, Johnson, and Fode (1964, p. 540) tested for these effects on semantic differential ratings and found them to be negligible.

The lighting, room temperature, and seating arrangement in the room remained constant. Groups were small, as there were rarely more than ten raters in each group. The time of day at which ratings were made was held constant for each group.

Each booklet distributed to the subjects contained rating sheets for twenty presentations, and a set of instructions which were read aloud (see Appendix C). As will be mentioned in the discussion of the pilot study (Chapter V), the directions were divided into two segments, thus keeping the directions for rating reactions separate from instructions for rating pairs as a whole. After reading directions aloud, the experimenter asked if there were any questions concerning their task. After questions had been answered, the stimuli were presented.

Subjects in Group a viewed stimuli sequentially on the first day, while those in Group b saw them simultaneously (see Table 1). Two days later, Group a viewed the stimuli simultaneously, while Group b was exposed to them sequentially. The conditions (1, 2, 3, 4) presented in the table indicate whether the group had sequential (1, 3) or simultaneous

(*2*, *4*) exposure first. These conditions also refer to particular randomized orders of presentation for the pairs of visuals, as indicated in the order of letters corresponding to pairs of stimuli in Appendix A.

TABLE 1. EXPERIMENTAL CONDITIONS

	Group	
	a	*b*
Day 1	*Sequential* (*Condition 1*) *Set I* slides (reaction) D, E, B, G, F, H, C, A *Set II* slides (contrast, etc.) M, K, L, J, P, O, I, N	*Simultaneous* (*Condition 2*) *Set II* slides (contrast, etc.) P, O, M, L, K, I, N, J *Set I* slides (reaction) D, B, G, E, H, C, F, A
Day 2	*Simultaneous* (*Condition 3*) *Set II* slides (contrast, etc.) N, M, J, L, P, I, O, K *Set I* slides (reaction) E, B, G, C, D, H, A, F	*Sequential* (*Condition 4*) *Set I* slides (reaction) D, C, B, A, F, G, E, H *Set II* slides (contrast, etc.) L, M, N, J, I, O, P, K

Two classrooms were contained in *Group a*, and were thus exposed to conditions *1* and *3*. Another three smaller classrooms comprised *Group b*, and were therefore exposed to conditions *2* and *4*. It was after the elimination of subjects due to absenteeism or improper scoring that an additional subject was selected to rate the stimuli in conditions *1* and *3*, for the purpose of providing an equivalent number of subjects in *Groups a* and *b* (sixteen in each group). An examination of this subject's ratings indicated that they did not differ significantly from ratings of the other subjects.

As was mentioned earlier, a separate group of subjects rated the visuals presented singly. To insure that no experimental juxtapositions occurred in this presentation, the first of the two stimuli in each pair in _Set I_ were randomized with the first of the two stimuli in each pair in _Set II_. Similarly, the second of the two stimuli in each pair in _Set I_ were randomized with the second of the two stimuli in each pair in _Set II_.

CHAPTER V

PILOT STUDY

A pilot study was conducted to identify unforeseen problems. Five Indiana University graduate students viewed twenty-two pairs of slides, both simultaneously and sequentially. After viewing each of the first ten pairs, the students rated the second slide (a reaction). After viewing each of the next twelve pairs, the students rated the two-shot pair for the "meaning of the sequence as a whole". Each stimulus or pair of stimuli was rated on the following scales of the semantic differential, which included all three factors (Evaluation, Potency, Activity). The order of presentation of the scales was randomized across categories (EPA), and adjective order was reversed on certain randomly selected pairs of scales.

Fine	_ _ _ _ _ _ _	Coarse
Fast	_ _ _ _ _ _ _	Slow
Ugly	_ _ _ _ _ _ _	Beautiful
Weak	_ _ _ _ _ _ _	Strong
Harsh	_ _ _ _ _ _ _	Mild
Cheerful	_ _ _ _ _ _ _	Lonely
Young	_ _ _ _ _ _ _	Old
Tame	_ _ _ _ _ _ _	Wild
Hot	_ _ _ _ _ _ _	Cold
Heavy	_ _ _ _ _ _ _	Light
Impure	_ _ _ _ _ _ _	Pure
Soft	_ _ _ _ _ _ _	Hard
Serious	_ _ _ _ _ _ _	Frivolous
Good	_ _ _ _ _ _ _	Bad
Passive	_ _ _ _ _ _ _	Active
Detached	_ _ _ _ _ _ _	Concerned

This chapter will deal with a discussion of the following areas: time limit, number of judgments, practice trials, instructions, and additional data.

Time Limit

Length of Exposure to Stimuli

In designing the experiment, considerable attention was given to determining the length of time each slide should remain on the screen. The major question concerned itself with whether or not the length of the simultaneous presentation should be equivalent to that of the sequential presentation. For example, if each of the slides presented sequentially remained on the screen for two seconds, should the slides presented simultaneously remain on the screen for four seconds, or for a shorter period of time?

One of the few available studies comparing simultaneous to sequential presentations was conducted by Allen and Cooney (1964, p. 168). Dealing with the relationship between method of presentation and factual learning, they produced films with both sequential and simultaneous formats. Yet in describing their stimulus materials, no account was provided of the comparative length of the simultaneous and sequential presentations. Further, while Tohanis (1975, p. 396) mentions the advantage of reduced time for the presentation of an idea, and/or significant increases in learning through multiple image, he adds that little research exists to substantiate these claims.

Perrin (1969, p. 369) does suggest that the same number of visuals can be presented more rapidly. He claims that the immediacy of simultaneous presentation on side-by-side screens allows the viewer to process information in a very short period of time.

> The theory of multiple imagery suggests that for making contrasts and comparisons, and for learning relationships, simultaneous images reduce the task of memory (a dimension of visual task) and enable the viewer to make immediate comparisons (Perrin, 1969, p. 376).

While certain literature does indicate that an equivalent amount of information can be presented simultaneously in less time, literature quantifying the degree of time reduction on the level of a short series of slides was not available. As this writer preferred to treat length of exposure as a procedural consideration rather than an experimental variable, the pilot study dealt with the length of exposures for stimuli presented simultaneously. In the pilot study, stimuli in the sequential condition were exposed for two to three seconds. Stimuli in the simultaneous condition were exposed from two and one half to six seconds. Viewers indicated a preference for a three second time limit for each slide in the sequential condition, and a six second limit in the simultaneous condition, claiming that this somewhat longer exposure facilitated their making judgments. However, because experimental subjects were much younger than the pilot subjects, it was decided to question a small sample of them with respect to time of exposure and ease of rating. These subjects favored a four second exposure per slide in the sequential condition, and an eight second exposure per pair in the simultaneous condition. Consequently, four-second and eight-second exposures were used for the experimental presentations.

Time between Conditions

Time schedules of the students in the pilot study did not permit viewings in the simultaneous and sequential conditions to be separated by more than twenty-four hours. One student insisted that she recalled her original responses, and felt exactly the same way in both conditions. When asked to specify a visual in which she remembered her initial feelings, it was found that her ratings on many of the scales were nevertheless separated by one to two steps in semantic space. Even though this subject claimed that in no way did her memory of the initial rating affect her present judgment, it was nevertheless decided that a longer period should elapse between rating the slides in each condition. For the actual experiment, scheduling was such that a period of two days elapsed between presentations. A longer waiting period between presentations would have resulted in too great an inconvenience, considering the classroom instructor's agenda.

Number of Judgments

Because the stimuli were characterized by low referability, one subject felt that too many judgments were required from such a brief exposure, as many of his images faded too quickly. He claimed that he caught himself at times judging the scales rather than the pictures. For example, he was asking himself, "Is it good or bad to be active or passive?"

According to Kerlinger (1973, p. 569), it is necessary to use only a few of the scales to ascertain the nature of the factors (EPA). For this reason, the number of scales was reduced from sixteen to eleven. Reduction of the number of scales was made upon an examination of the pilot data, and elimination was based on the inability of the scales to produce differences between simultaneous and sequential conditions.

More specifically, an examination of the responses involved a frequency count of the number of "no differences" in semantic space between simultaneous and sequential presentations. The number of "no differences" for each scale were calculated and ranked, and the scales with the least ability to yield variation between simultaneous and sequential presentations were discarded. These scales included: fine-coarse (E), beautiful-ugly (E), pure-impure (E), strong-weak (P), young-old (A).

Practice Trials

Some subjects seemed briefly confused by the task of rating a picture. Also, one subject stated as the experiment progressed, "My judgments are getting more extreme. Is that normal?" So that confusion would be eliminated, and so that subjects could level out in their ratings on the scales, it was decided that four practice trials were to precede the ratings to be analyzed.

Instructions

It was found that instructions were less confusing if the two rating tasks were kept separate. It was decided then, that instructions should be given concerning the rating of the reaction stimuli, then the trial ratings would follow, and finally the ratings to be analyzed would be made. After the Set I reaction stimuli were viewed, instructions would be given on rating the pairs as a whole, and then Set II would be rated.

Additional Data

Through talking to some subjects following the pilot study, additional information was obtained on the difference between viewing stimuli simultaneously and sequentially. In contrast to the subject who had claimed she saw exactly the same thing, felt exactly the same way, and recorded exactly the same responses in both conditions, two other subjects expressed different viewpoints. For example, in inspecting the pairs of stimuli consisting of rodeo action and a cowboy's reaction (see pair A, Appendix A), one viewer felt that the face appeared much more detached in the sequential condition, and that the reaction appeared stronger when stimuli were viewed simultaneously. Not only did the reactions appear stronger, they sometimes looked very different. For example, in juxtaposing a ballerina with a man's face (see pair D of Appendix A), the man appeared to have a vulgar expression in the sequential condition, and a look of admiration in the simultaneous condition. Two of the viewers generally felt that things were happening "at the moment" when the stimuli were viewed simultaneously. Such additional verbal reports lend support to the notion that there may be a difference in the connotations of a visual observed sequential to or simultaneous with another visual.

CHAPTER VI

RESULTS

This chapter deals with the analysis performed on the data to test the hypotheses set out in Chapter III. The validation of the Evaluative, Potency, and Activity scales will be considered first. Secondly, the reliability of the responses will be examined. Thirdly, the method of analysis and definitions of terms will be presented. Fourthly, a summary of the results as related to each hypotheses will be examined. Lastly, an inspection of the eleven scales will be made for their ability to produce differences in semantic space between the simultaneous and sequential ratings.

Validation of the Three Hypothesized Scales

Eleven scales were selected for inclusion in this study on the basis of their relevancy to the stimuli as well as for their high factor loadings as found in other studies. (The expected clusters can be found in Chapter IV.) A factor analysis was conducted to see if the adjectives did in fact cluster into the Evaluative, Potency, and Activity (EPA) dimensions for this particular study. A confirmatory factor analysis indicated that these EPA dimensions were not formed. Table 2 presents the factor loadings for the varimax rotation of the three factor solution.

Table 2. Rotated Factor Loadings

	Factor 1	Factor 2	Factor 3
Bad-Good	.739*	.211	-.078
Heavy-Light	.651*	.104	.160
Slow-Fast	.043	.569*	.042
Concerned-Detached	.039	.050	-.600*
Harsh-Mild	.839*	-.046	-.108
Wild-Tame	.686*	.245	.049
Passive-Active	-.021	.606*	-.039
Hard-Soft	.811*	-.038	.122
Cold-Hot	.516*	.363	-.038
Serious-Frivolous	.234	-.104	-.779*
Lonely-Cheerful	.484	.398	-.240

*These items tended to have common factor loadings.

In summary, the following items tended to cluster into factors:

Factor 1

Bad-Good
Heavy-Light
Harsh-Mild
Wild-Tame
Hard-Soft
Cold-Hot
Lonely-Cheerful

Factor 2

Slow-Fast
Passive-Active

Factor 3

Concerned-Detached
Serious-Frivolous

The three factor analysis was conducted for the sole purpose of testing the three hypothesized orthogonal EPA factors. Running a three factor solution will result in the formation of three factors, regardless of whether or not these factors clustered meaningfully. (While anywhere from a one to a ten factor solution could have been examined, a three factor solution was chosen to test the three hypothesized EPA clusters.) Although the analysis resulted in the above three factors, there is no reason to assume that these clusters reflect a real underlying structure, or even the statistical simplex.

As neither the EPA factors nor the three factors resulting from the above factor analysis appeared to be meaningful for the purposes of this study, further analyses in regard to the hypotheses were made without reducing the eleven scales into three factors. Rather, the following analyses utilized the eleven scales as multiple measures of the dependent variable. The following analyses consider all eleven variables simultaneously. If in fact there is an underlying "cluster" of scales, these clusters or inter-correlations of variables would also be considered by the multivariate technique.

In summary, a factor analysis revealed that the three hypothesized dimensions were not formed by the data. In regard to the three clusters that were formed, the multivariate analysis revealed their three canonical equations to be insignificant. One canonical equation was significant, and this equation took into account all eleven variables. The discriminant analysis, then, did consider the eleven variables in all possible combinations. As these combinations did not add any significant information for making predictions, the eleven taken together formed the basis of the analysis.

Reliability of the Measures

In evaluating the semantic differential, Osgood (1952, p. 230) noted the reliability of the instrument to be .85. Although the instrument is well known for its high degree of response stability, it was nevertheless decided that an estimate of reliability be obtained for the present study. The responses of one volunteer were measured twice over a period of two days. The two presentations of stimuli were in different random orders. The Pearson Product-Moment correlation of the ratings was .78, indicating a moderately high degree of response stability over time.

Method of Analysis and Definitions of Terms

An SPSS discriminant analysis was employed to test the hypotheses set forth in Chapter III. In essence, discriminant analysis is a multivariate procedure which analyzes variance for categorical variables. Because discriminant analysis was repeatedly performed, the individual analysis level of acceptance was set at .01.

Discriminant analysis distinguishes between two or more groups. In this study, these groups are the responses under the simultaneous, sequential, and single conditions. The eleven scales measured the differences in connotative meanings of the visuals presented in different juxtapositions and separately. While no single scale perfectly differentiates between the meanings that arise from each type of presentation, it is through mathematically combining the scales that a single dimension could be produced on which meanings of sequentially juxtaposed visuals are clustered at one end, and meanings of simultaneously juxtaposed visuals are clustered at another.

At the end of each hypothesis section a table is presented with indicators of group differences and their coefficients. Eigenvalues and their associated canonical correlations signify each function's relative ability to distinguish between groups. The group centroids are the mean discriminant scores for each group for each of the eleven functions. They summarize the group's location in reduced space, as defined by the eleven discriminant functions (Klecka, 1975, pp. 435-440).

As a reminder in considering the following hypotheses, reference will again be made to the following experimental groups:

Groups 1 and 3: Sequential presentation first
Groups 2 and 4: Simultaneous presentation first
Group 5: Single presentation

Testing of the Hypotheses

Hypothesis One

Both simultaneous and sequential juxtapositions of action-reaction shots were presented to the subjects, who were instructed to rate the connotative meaning of each reaction shot.

Hypothesis One states that when juxtaposing a single action shot with a single reaction shot of a face, there will be a significant difference in the meaning of the face when juxtaposition is done sequentially, compared to its meaning when juxtaposition is presented simultaneously.

a. A discriminant analysis found there to be no significant difference at the .01 level in the meanings of the faces between the sequential and simultaneous presentations in groups 1 and 3, where the sequential presentation was viewed first (see Table 4).

b. A discriminant analysis found there to be no significant difference at the .01 level in the meanings of faces between the simultaneous and sequential conditions 2 and 4, where simultaneously projected pairs were viewed first (see Table 4).

c. A discriminant analysis found there to be no significant difference at the .01 level in the meaning of faces between simultaneous conditions 2 and 3 combined and sequential conditions 1 and 4 combined (see Table 4).

TABLE 3. HYPOTHESIS ONE
CENTROIDS OF GROUPS IN REDUCED SPACE*

a.	Group 1	.259
	Group 3	-.259
b.	Group 2	-.321
	Group 4	.321
c.	Groups 1, 4	.120
	Groups 2, 3	-.120

*The farther away groups are from zero, the more dissimilar they are. Examples of deductive statements that can be made from this table are: Groups 1,4 and 2,3 are more similar than groups 2 and 4 or 1 and 3. Groups 1 and 3 are more similar than groups 2 and 4.

TABLE 4. HYPOTHESIS ONE
INDICATORS OF GROUP DIFFERENCES

	Eigenvalue	Canonical Correlation	Significance
a. Groups *1*,*3*	.067	.251	.134
b. Groups *2*,*4*	.104	.307	.011
c. Groups *1*,*4*/*2*,*3*	.015	.120	.776

Hypothesis Two

Shots were presented to one group of subjects singly (unjuxtaposed), and the same shots were presented to other subjects as reaction shots within action-reaction juxtaposed pairs. Hypothesis Two states that when juxtaposing (both simultaneously and sequentially) a single action shot with a single reaction shot of a face, there will be a significant difference in the meaning of the face, compared to its meaning when presented singly (unjuxtaposed to another shot).

A discriminant analysis found there to be no significant difference at the .01 level between the meanings of stimuli rated in juxtaposed conditions *1*, *2*, *3*, *4*, and the meanings of these same stimuli rated in unjuxtaposed condition *5* (see Table 6).

TABLE 5. HYPOTHESIS TWO
CENTROIDS OF GROUPS IN REDUCED SPACE

Groups *1*, *2*, *3*, *4*	-.058
Group *5*	.465

TABLE 6. HYPOTHESIS TWO
INDICATORS OF GROUP DIFFERENCES

	Eigenvalue	Canonical Correlation	Significance
Groups 1, 2, 3, 4/5	.027	.163	.173

Hypothesis Three

Simultaneous and sequential juxtapositions of action-reaction, comparative, or contrasting shots were presented to the subjects, who were instructed to rate the meaning of each pair as a whole. Hypothesis Three states that when juxtaposing a pair of action-reaction, comparative or contrasting shots, there will be a significant difference in the meaning of the pair as a whole when juxtaposition is done sequentially, compared to juxtaposition that is presented simultaneously.

a. A discriminant analysis found there to be no significant difference at the .01 level in the meanings of the pairs as a whole between the sequential and simultaneous presentations in conditions 1 and 3, where the sequential presentation was viewed first (see Table 8).

b. A discriminant analysis found there to be no significant difference at the .01 level in the meaning of the pairs as a whole between the simultaneous and sequential presentations in conditions 2 and 4, where the simultaneous presentation was viewed first (see Table 8).

c. A discriminant analysis found there to be no significant difference at the .01 level in the meaning of the shots as a whole between sequential conditions 1 and 4 combined, and simultaneous conditions 2 and 3 combined (see Table 8).

a. In each of the comparative or contrasting pairs (J, K, L, M, and O), a discriminant analysis found that the ratings as a whole resembled significantly (.01) more closely one of the pair's constituent visuals. The centroids for the single shot responses and the combined shot responses are shown in Table 9. Specifically, the ratings of pair J (19/20) more closely resembled the ratings of picture 19. The ratings for K (21/22) more closely resembled the ratings for 21. The ratings for L (23/24) resembled more closely the ratings for 23. The ratings for M (25/26) resembled more closely the ratings of 25. The ratings of O (29/30) resembled more closely the ratings of 30.

b. In regard to action-reaction pairs rated as a whole (I, N, P), the discriminant analysis found that neither pairs I (17/18) nor P (31/32) resembled their constituent shots, even though the ratings of the shots significantly resembled each other. The ratings of N (27/28) significantly resembled more closely the rating of shot 28.

TABLE 7. HYPOTHESIS THREE
CENTROIDS OF GROUPS IN REDUCED SPACE

a.	Group _1_	-.260
	Group _3_	.260
b.	Group _2_	-.219
	Group _4_	.219
c.	Groups _1_, _4_	.169
	Groups _2_, _3_	-.169

TABLE 8. HYPOTHESIS THREE
INDICATORS OF GROUP DIFFERENCES

		Eigenvalue	Canonical Correlation	Significance
a.	Groups _1_, _3_	.068	.252	.129
b.	Groups _2_, _4_	.048	.215	.383
c.	Groups _1_, _4_/_2_, _3_	.029	.167	.219

Final Question

In regard to the ratings of each juxtaposed pair of action-reaction, comparative, or contrasting shots as a whole, a major question was considered. Is there a significant difference between the meaning of a scene as a whole and the meanings of the visuals constituting the scene but presented singly? For example, does one of the visuals appear to affect the meaning of the scene more than the other visual?

TABLE 9. FINAL QUESTION
CENTROIDS OF GROUPS IN REDUCED SPACE

a.	J (19/20)	.401
	19	-.589
	20	-2.619
	K (21/22)	-.559
	21	.830
	22	3.638
	L (23/24)	.314
	23	-.260
	24	-2.253
	M (25/26)	.198
	25	1.450
	26	-3.033
	O (29/30)	.575
	29	-3.033
	30	-1.565
b.	I (17/18)	-.651
	17	2.260
	18	2.949
	N (27/28)	-.408
	27	3.773
	28	-.512
	P (31/32)	-.031
	31	-2.343
	32	2.588

TABLE 10. FINAL QUESTION
INDICATORS OF GROUP DIFFERENCES

	Eigenvalue	Canonical Correlation	Significance*
a. J (19/20)	.882	.685	.000
K (21/22)	1.706	.794	.000
L (23/24)	.616	.617	.000
M (25/26)	1.207	.739	.000
O (29/30)	1.484	.773	.000
b. I (17/18)	1.787	.801	.000
N (27/28)	1.644	.789	.000
P (31/32)	1.267	.748	.000

*Significance is less than .0001

Inspection of the Eleven Scales

The Werner-Wapner Sensory-Tonic Field Theory of Perception holds that perceptual properties of an object are a function of the way in which stimuli coming from the object affect the sensory-tonic state of the organism. According to Werner and Wapner (1952, p. 325), "The perceptual properties of an object depend on the way in which stimuli from a physical object affect the organism and on the subsequent specific and active manner in which the organism reacts to it." These theorists also state that ". . . tonus . . . induced indirectly through sensory stimulation, is a formative factor in structuring the perceptual field" (Werner and Wapner, 1949, p. 45). Because the stimuli in regard to Hypothesis One were characterized by physical activity, it would seem that, in light of the Sensory-Tonic Theory, the Activity scales might be especially significant.

In studying artists' judgments of a number of paintings, Tucker (1955) examined their responses on forty scales of the semantic differential. From his analysis, an Activity factor was found to account for forty-six per cent of the variance, while the Evaluative factor accounted for seventeen per cent, and the Potency factor accounted for only ten per cent. In making aesthetic judgments, then, the Activity factor has relatively more weight (Osgood, 1957, pp. 292-294).

The results in the present study could not support the Werner-Wapner Sensory-Tonic Field Theory, since no items taken together were significant in separating the simultaneous and sequential groups. However, a post hoc analysis did find that the Activity items were the best items for differentiating the simultaneous and sequential groups (conditions 2 and 4), even though taken together they did not reach statistical significance. The direction of effect was clearly in support of the Field Theory.

Means of each of the eleven scales were calculated from the data collected for Hypothesis One, which concerned action-reaction stimuli. The means for the simultaneous and sequential conditions were also subtracted, in order to determine which scales produced the greatest distance in semantic space--which scales were best able to separate the simultaneous and sequential ratings. Tables 11 through 13 present means for the simultaneous and sequential ratings on each of the hypothesized Evaluative, Potency, and Activity factors. Table 14 presents mean ratings for the scale "Concerned-Detached", which was selected with no known factor loading. Means were calculated across subjects and photographs. All tables indicate distances in semantic space between simultaneous and sequential conditions. Because conditions 2 and 4 were almost significantly different (.011), while conditions 1 and 3 were not (.134), it was decided to examine conditions 2 and 4 separately from conditions 1 and 3.

TABLE 11. MEAN RATINGS OF SIMULTANEOUS AND SEQUENTIAL CONDITIONS FOR SCALES OF THE PREDICTED EVALUATIVE FACTOR

	Good-Bad	Mild-Harsh
Condition 1 (Sequential)	3.758	4.039
Condition 3 (Simultaneous)	3.787	3.764
Distance in Semantic Space	.029	.275
Condition 2 (Simultaneous)	3.727	3.930
Condition 4 (Sequential)	4.070	3.953
Distance in Semantic Space	.343	.023

TABLE 12. MEAN RATINGS OF SIMULTANEOUS AND SEQUENTIAL CONDITIONS FOR SCALES OF THE PREDICTED POTENCY FACTOR

	Heavy-Light	Wild-Tame	Hard-Soft	Serious Frivolous
Condition 1 (Sequential)	4.039	3.953	3.898	2.953
Condition 3 (Simultaneous)	4.016	4.118	4.079	3.167
Distance in Semantic Space	.023	.165	.181	.214
Condition 2 (Simultaneous)	3.875	4.102	3.539	2.367
Condition 4 (Sequential)	3.641	4.266	3.693	2.117
Distance in Semantic Space	.234	.164	.154	.250

TABLE 13. MEAN RATINGS OF SIMULTANEOUS AND SEQUENTIAL CONDITIONS FOR SCALES OF THE PREDICTED ACTIVITY FACTOR

	Fast-Slow	Active-Passive	Hot-Cold	Cheerful-Lonely
Condition *1* (Sequential)	3.977	3.758	3.953	4.117
Condition *3* (Simultaneous)	4.008	3.701	4.151	4.286
Distance in Semantic Space	.031	.057	.198	.169
Condition *2* (Simultaneous)	4.070	4.313	4.234	4.320
Condition *4* (Sequential)	4.500	4.394	4.750	4.797
Distance in Semantic Space	.43	.081	.516	.477

TABLE 14. MEAN RATINGS OF SIMULTANEOUS AND SEQUENTIAL CONDITIONS FOR THE SCALE "CONCERNED-DETACHED"

	Concerned-Detached
Condition *1* (Sequential)	3.227
Condition *3* (Simultaneous)	3.244
Distance in Semantic Space	.017
Condition *2* (Simultaneous)	2.875
Condition *4* (Sequential)	2.391
Distance in Semantic Space	.484

From the information provided in the above tables, the distances in semantic space were ranked from greatest to least. Greater distance for a scale reflects the scale's greater ability to distinguish between sequential and simultaneous ratings. Table 15 presents the ranked distances for each scale in conditions *1*, *3* and conditions *2*, *4*. From the table, it can be seen that three of the four top scales (scales best at separating simultaneous from sequential judgments) in the almost significantly different conditions 2, 4 fell within the hypothesized Activity factor.

TABLE 15. RANKED DISTANCES IN SEMANTIC SPACE FOR SIMULTANEOUS AND SEQUENTIAL RATINGS

Conditions 1, 3	Conditions 2, 4
.275 (E)	.516 (A)*
.214 (P)	.484 (-)
.198 (A)	.477 (A)*
.181 (P)	.430 (A)*
.169 (A)	.343 (E)
.165 (P)	.250 (P)
.057 (A)	.164 (P)
.031 (A)	.154 (P)
.029 (E)	.081 (A)
.023 (P)	.023 (E)
.017 (-)	

*.516 - Hot-Cold
*.477 - Cheerful-Lonely
*.430 - Fast-Slow

Summary

A factor analysis revealed that the scale items did not cluster as expected into the Evaluative, Potency, and Activity dimensions, and so the analysis was made without reducing the eleven scales to the EPA factors. The reliability of the responses was moderately high (r = .78).

The SPSS discriminant analysis was employed to test the hypotheses and final question, and the major findings are as follows:

1. Both simultaneous and sequential juxtapositions of action-reaction shots were presented to subjects, who were instructed to rate the connotative meaning of each reaction shot. It was found that when juxtaposing a single action shot with a single reaction shot of a face, there was no significant difference at the .01 level in the meaning of the face when juxtaposition was done sequentially, compared to the meaning when juxtaposition was presented simultaneously.

2. Shots were presented to one group of subjects singly (unjuxtaposed), and the same shots were presented to other subjects as reaction shots within action-reaction juxtaposed pairs. It was found that when juxtaposing (both simultaneously and sequentially) a single action shot with a single reaction shot of a face, there was no significant difference at the .01 level in the meaning of the face, compared to its meaning when presented singly.

3. Simultaneous and sequential juxtapositions of action-reaction, comparative, or contrasting shots were presented to the subjects, who were instructed to rate the meaning of each pair as a whole. It was found that when juxtaposing a pair of action-reaction, comparative or contrasting shots, there was no significant difference at the .01 level in the meaning of the pair as a whole, when juxtaposition was done sequentially, compared to juxtaposition presented simultaneously.

4. When subjects rated each juxtaposed pair of action-reaction, comparative, or contrasting shots as a whole, it was found that in six of the eight pairs, the ratings of pairs as a whole significantly resembled one of the pair's constituent visuals. In two of the three action-reaction pairs rated as a whole, the ratings resembled neither of the constituent visuals.

In regard to the data collected for Hypothesis One, the Activity scales were best able to produce differences between simultaneous and sequential ratings in conditions 2 and 4. Ratings in these conditions were significantly different at the .011 level.

CHAPTER VII

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

It is felt that studying film with the same specificity that one would employ in studying a language may be of value in learning how a viewer extracts meaning from sequences of shots within a film. Just as linguists are seeking more detailed descriptions of the way words interact in combinations, so many film theorists are advocating a more precise study of the interaction of shots. According to Pryluck (1968, p. 391),

> The existence of inferential relationships is the underlying assumption of film editing and perhaps of all filmic communication although the mechanism governing filmic juxtapositions is only dimly and intuitively understood.

Both motion picture and multiple image presentations involve a complex interaction of signals. According to Trohanis (1975, p. 404),

> The communicative power for AMI was an interplay among its properties: visual and audio information, simultaneity, screen size and program length, along with concepts of perception, memory, and motivation.

For Pryluck (1968, p. 395), understanding the effects of these individual components provides only a baseline, as the fundamental problem of filmic communication is the interaction of these effects. Yet if the elements of this "total language" of film and multiple image are to be studied systematically, the cognitive aspects of the more fundamental elements constituting the interplay must first be examined.

This study has been such an attempt. Electing to focus on the elemental level of sequencing, a language dimension shared by both motion pictures and multiple image, this study was designed to eliminate the interactions of a variety of media attributes (audio-verbal, sound effects, music, cutting rate, motion, time, etc.) in order to determine:

a. if differences in connotative meaning exist in two-shot simultaneous and sequential juxtapositions.

b. if differences exist in the meanings of a visual which has been placed in juxtaposition and the same visual unjuxtaposed.

c. if one visual within a sequence affects the meaning of the sequence as a whole more than another.

What follows is a discussion of the results in light of the hypotheses and the final question.

Hypotheses One and Three

As was mentioned earlier, perception involves continual scanning, fixating, interpreting, remembering, and constructing scenes from parts of scenes (Goldstein, 1975, p. 59). Because the viewer is allowed to re-scan, relate, and re-associate visuals in simultaneous juxtapositions, it was thought that the connotative meaning of a simultaneously presented pair of visuals would be different in meaning from visuals viewed in serial juxtapositions. It was found, however, that neither reactions within action-reaction pairs, nor meanings of pairs as a whole in action-reaction, comparative, and contrasting stimuli differed in respect to simultaneous and sequential juxtapositions. The results of the present study, then, indicate that differences in connotative meaning do not appear to exist between simultaneous and sequential juxtapositions on as basic a level as a two-shot sequence, with other interactions (audio-verbal, music, variations in cutting rate, movement, etc.) eliminated.

It should be noted, however, that the data reflects somewhat of an order effect. There was almost a significant difference (.011) between ratings in the simultaneous and sequential conditions when simultaneous juxtapositions were viewed first (see Groups 2, 4 of Table 4). While it is possible that this difference could have been due to differences in the subjects of which the experimenter is unaware, it is also possible that the difference may be attributed to prior exposure to the stimuli. It is recommended, then, that the experiment be replicated

1. preferably with a far greater time period between ratings, or
2. using different subjects in the simultaneous and sequential conditions.

Further, a closer inspection of the data from the scales in respect to Hypothesis One indicated that, when there was almost a significant difference between simultaneous and sequential ratings (conditions 2, 4), Osgood's Activity scales accounted for a goodly portion of the variance. It is therefore recommended that the present experiment be replicated using either all Activity scales, or a disproportionate share of them.

Hypothesis Two

It was expected that the meaning of a face would differ, depending upon whether it was presented in isolation or in a juxtaposition. Such a prediction was based on, among other theorists, Eisenstein, and his contention that ". . . two film pieces of any kind, placed together, inevitably combine into a new concept, a new quality, arising out of that juxtaposition" (Eisenstein, 1947, p. 4). (Underlining mine.) It is realized that the comparisons involved in Pudovkin's study (one visual in three combinations) were different from the comparisons in the present study (visuals presented in juxtaposition and singly). Nevertheless, just as the "expressionless" face of Pudovkin's actor took on various meanings, depending upon the particular visuals with which it was juxtaposed, it was assumed that the faces in the present study would take on different qualities when presented as reactions to various situations. The fact that such was not the case is very interesting to this writer.

Three reasons come to mind that may account for the differences between Pudovkin's study and the present experiment--the experimental design, the subjects, and the method of responding. Further, the absence of associative cues in the visuals may have affected the results in the present study.

In looking more closely at the Kulsehov-Pudovkin experiment, there appear to be three fundamental differences in the way their experiment and the present study was conducted. The following is a description of the Kulsehov-Pudovkin experiment:

> Kulsehov and I made an interesting experiment. We took from some film or other several close-ups of the well-known Russian actor Mosjukhin. We chose close-ups which were static and which did not express any feeling at all--quiet close-ups. We joined these close-ups, which were all similar, with other bits of film in three different combinations. In the first combination the close-up of Mosjukhin was immediately followed by a shot of a plate of soup standing on a table. It was obvious and certain that Mosjukhin was looking at this soup. In the second combination the face of Mosjukhin was joined to shots showing a coffin in which lay a dead woman. In the third the close-up was followed by a shot of a little girl playing with a funny toy bear. When we showed the three combinations to an audience which had not been let into the secret the result was terrific. The public raved about the acting of the artist.

> They pointed out the heavy pensiveness of his mood over the forgotten soup, were touched and moved by the deep sorrow with which he looked on the dead woman, and admired the light, happy smile with which he surveyed the little girl at play. But we knew that in all three cases the face was exactly the same (Pudovkin, 1949, p. 140).

In considering the statement "When we showed the three combinations to an audience which had not been let into the secret the result was terrific," it seems to this writer inconceivable that the same facial expression juxtaposed in three conditions to the same group, apparently in the same sitting, would go unrecognized as the same expression. While Pudovkin assumed that the audience "had not been let into the secret", it is difficult to fathom how any audience could not suspect the purpose of the study with the second juxtaposition which employed the same face.

That second-guessing the experimenter and providing different meanings for the same facial expression could easily occur was evidenced during the period of data collection in the present study, in regard to one observer who helped the experimenter prepare for and administer the presentations. After having viewed the juxtaposed pairs, the helper expressed a desire to rate the slides along with the subjects in unjuxtaposed condition 5. A cursory examination of her ratings indicated considerably more extreme judgments than the other raters, who had not been exposed to juxtapositions. When this was brought to her attention, she claimed that she ". . . was trying not to be blasé about the ratings." Such an attitude could have easily come about through knowing that the slides were presented elsewhere as reactions in juxtaposed pairs. (Her ratings were not included in the experimental ratings.) It was in fact for this reason that the present experiment was designed using a separate group of raters for the unjuxtaposed condition.

Secondly, the subjects who viewed Pudovkin's juxtapositions may have been prone to scrutinize shots for nuances in expressions. As this study is referred to as the "Kulsehov-Pudovkin" experiment, and since Kulsehov was Pudovkin's instructor, it is not unreasonable to assume that subjects used could readily have been taken from a class in acting or film production. A captive audience of students would seem to be the most likely group to view juxtapositions and comment on the quality of acting. That Pudovkin was greatly influenced by the Stanislovsky school of acting is well known. To quote Pudovkin,

> Stanislavsky's system became my school, and my first experiments in cinematography aimed at shaking off every convention of stage technique unnecessary to the screen actor (Pudovkin, 1974, p. 190).

Stanislavsky's system was particularly suited to cinematic communication, with its use of the close-up. The hallmark of this school was the use of a very naturalistic approach, wherein nuances in facial expressions acquire extreme importance. If these subjects were students of acting being trained within the Stanislavsky cadre,

a. they may have actually seen different expressions on Mosjukhin's face, as the closeups were not exactly identical, or

b. they may simply have been predisposed to think they saw differences in facial expressions.

At any rate, the type of subjects used in Pudovkin's and in the present study may be partially responsible for the differences in results between these studies.

Thirdly, Pudovkin described the viewers who "pointed out the heavy pensiveness of his mood over the forgotten soup, were touched and moved by the deep sorrow with which he looked at the dead woman, and admired the light happy smile with which he surveyed the little girl at play." While no explicit account was provided of the manner in which responses were obtained, it is fairly apparent that to "point out", to be "touched and moved by", and to "admire" probably were expressed through free responses, which are quite different from the response scales employed in the present study.

In the present pilot project, grossly different verbal descriptions were given to the same visuals even within the same pairs of simultaneous and sequential juxtapositions Reference has already been made to one pilot subject's responses to pair D, where the man (picture 8) appeared to have a vulgar expression in the sequential condition and a look of admiration in the simultaneous condition. Yet in the present study, no significant difference existed between ratings in the simultaneous and sequential conditions, as indicated by responses to the semantic differential. Had Pudovkin employed a more subtle means of measuring differences, as well as different raters for each juxtaposition, perhaps ratings of the actor's face may have been more alike.

The fact that Pudovkin's subjects may have been affected by knowledge of the purpose of his study, the fact that they may have been students influenced by the Stanislavsky school of acting, and the fact that verbal reports may lend themselves to exaggeration, could account for the differences found between Pudovkin's study and the present experiment.

Further, the lack of a significant difference between meanings of juxtaposed and unjuxtaposed shots may be accounted for in another way--the lack of associative cues.

Because the stimuli in Set I (pairs A through H) were described to the raters as ". . . pairs of slides, the first slide in each pair being an action shot, and the second slide in each pair being a person's reaction to what is happening in the first shot" (see Appendix C), it was assumed that an association had been formed between the first and second shots of each pair. Again, Eisenstein maintained that the simple juxtaposition of any two pieces of film would result in an interaction and the creation of a new concept.

Gregory insists, however, that associative cues must be present in juxtaposing shots before an assertion can be formed. Such cues are kinetic (e.g., an action being continued from one shot into the next), or semantic (e.g., elements of the same setting are present in each visual). These cues serve to strengthen the association formed by simple contiguity (Isenhour, 1975, p. 75). As associative cues form the basis of a strong "coupling action", two shots which are strongly related by an assertion will interact and change.

> Although simple juxtaposition is associative and thus forms an assertion, strong assertions are based on associative kinetic and semantic cues (Isenhour, 1975, p. 75).

In agreement with Gregory, Pryluck claims that logical or literary relationships between shots are not enough for effective juxtapositions to occur; rather, succeeding shots should have both expressive and content relevance (Pryluck, 1968, pp. 392-393). Shots that are related by a strong assertion change their meaning, while shots related by a weak assertion (mere juxtaposition) would be expected to change their meaning less.

Assertions between action-reaction shots were weak in pairs of Set I, as neither semantic nor kinetic cues existed with which to bind them. The assertions being weak, the reactions' ratings would then be expected to resemble more closely the ratings of the shots presented alone (as was the case in this study).

It is interesting to note that in rating the action-reaction pairs "as a whole" in Set II, two of the three action-reaction pairs (I, P) had ratings whose constituent visuals did not resemble the "scene as a whole". In pair I, for example, visual 17's rating resembled very much the rating for 18 (reaction), but the rating of the pair as a whole resembled neither. It is in these two pairs that more obvious associative cues are found. Visual 17 presents a table of food, while 18 shows a man who is obviously full (semantic cue). Visual 31 presents a couple looking down, visual 32 shows a man looking up at them (kinetic cue). Perhaps these associative cues led to a change in the meaning of the pairs as a whole.

In summary, the shot of Pudovkin's actor became happy when juxtaposed by the shot of a child, pensive when juxtaposed by a bowl of soup, and sorrowful when juxtaposed by the shot of a coffin. Reaction shots in the present study, however, retained the same connotative meaning whether in juxtaposition or not. These differences could be due to differences in the experimental design, differences in the manner of responding to the visuals, and/or differences in the subjects employed. If the present study is considered as a more valid means of measuring the meaning of a visual, a degree of support may be lent to Gregory's notion that associative cues must exist between visuals before meaning changes.

Whether or not the existence of such cues was instrumental in creating different meanings for visuals was beyond the scope of this study. A more precise study of the comparison of the meaning of visuals with the presence and absence of such cues appears to be an avenue for further investigation. Such research has implications for the message designer interested in phenomenological effects that various juxtapositions can create.

Final Question

One concern of psycholinguists is the determination of laws of word mixture, which involves a consideration of how a combination of signs relates to its components. In regard to analogies with the laws of color mixture, for example, linguists wonder whether verbal signs with opposite meanings cancel each other out and tend toward a meaningless result, as complementary colors would mix toward a neutral grey. Further, they question whether analogies exist between verbal mixtures and color mixture, e.g., where a combination of colors is less saturated than either of its components. While a color mixture is less well saturated than its components, Osgood speculates that this is probably not the case for word mixtures--a STURDY TREE would probably be further from its origin than either component. Osgood and Sebeok (1954, pp. 180-181) conclude that a means of determining laws of word mixture involves an assessment of the words separately by a group of persons, and at a later time in combinations by the same persons.

Such considerations are likewise analogous to laws of pictorial mixtures. An attempt at the determination of such laws has already been presented by Pudovkin and Eisenstein. Pudovkin contended that in joining together two shots by editing, the result resembled more the nature of the sum (*a* + *b*). Eisenstein, however, maintained that the result resembled neither the sum nor the product (*a* *b*), but it resulted in a totally new term, *c* (Montague, 1967, p. 121). Using Osgood and Sebeok's plan for determining how the meaning of a combination of signs compares with the meanings of its components, this study presented pairs to be rated as a whole to one group of persons, and separate visuals that comprised each pair to another group.

For the comparative and contrasting pairs rated as a whole (J, K, L, M, O), and for one of the action-reaction pairs (N), the meaning of the pairs were affected more by one of the visuals within the pair. The relationship of the meaning of the pairs was neither additive (e.g., $J \neq \underline{19} + \underline{20}$), nor was it multiplicative (e.g., $J \neq \underline{19} \times \underline{20}$). Rather, in each case the ratings significantly resembled *one* of the visuals, suggesting that the meaning may have been affected more by one than the other. Such findings are in line with Worth's contention that "it is more likely when the pair is dissimilar [less associative] that the viewer will suspend judgment or be attracted more by the importance of one element than the other or simply average the elements. . . ." (Isenhour, 1975, p. 78). Again, in pairs J, K, L, M, O, and N, viewers were more influenced by one of the visuals, perhaps due to lack of associative cues tying them together. In contrast, the fact that visuals within their respective pairs I and P had similar ratings (*17* = *18*; *31* = *32*), that each pair contained either a strong semantic (I) or kinetic (P) cue, and that each pair's ratings was significantly different from its components, lends support to the notion that more similar visuals containing associative cues will combine to form quite a different meaning.

Such findings may have implications for the message designer. In various filmic presentations, pairs of comparative or contrasting visuals are juxtaposed for the creation of some effect. What the designer should be aware of is that some visuals appear to influence the meaning of a sequence unequally. *How* the juxtaposition of specific kinds of comparative and contrasting visuals affects the particular *intended meaning* of a sequence is also an avenue for further research.

CHAPTER VIII

SUMMARY

A skill that is required of the filmically literate individual is the ability to read a sequence of symbols that have been arranged to communicate a message or to trigger desired emotional responses. In motion pictures, this sequence or "montage" is thought to form the very basis of film language. Some have felt that significance is found not so much in the content of the shots, but in the manner in which they are juxtaposed.

Within the area of visual presentations, visual sequence can be accomplished either serially, as in motion pictures, filmstrips, and traditional slide shows, or simultaneously, as in the increasingly more popular multiple image presentations. There exists a paucity of research comparing simultaneous and sequential (serial) presentations, and the available literature is equivocal. Further, while some comparisons have been made on the gross level of entire simultaneous and sequential productions, no research focuses on the basic level of comparisons of meanings of particular shots. Realizing that the study of visuals calls for as precise an approach as in characteristic of linguistic analysis, the study of montage, or the phenomenological effect of juxtaposition on the level of a two-shot sequence, was in order.

The research involved entering a number of small community college classrooms on two separate occasions. Sixteen pairs of visuals, once in simultaneous and again in sequential juxtapositions, were presented to both male and female subjects. Ratings for the visuals were obtained on eleven scales of the semantic differential. Ratings of the same visuals not in juxtapositions were also made by a separate group. Measurements of connotative meanings were compared between these simultaneous, sequential, and single conditions.

Before the actual data collection was undertaken, a pilot study resulted in a refinement in the selection of scales, determination of the length of exposure per slide and pair of slides, the addition of a number of practice trials, and a modification in the presentation format for the instructions.

Results were analyzed using a discriminant analysis. The following findings pertain to the hypotheses and final question.

1. Both simultaneous and sequential juxtapositions of action-reaction shots were presented to subjects, who were instructed to rate the connotative meaning of each reaction shot. It was found that when juxtaposing a single action shot with a single reaction shot of a face, there was no significant difference at the .01 level in the meaning of the face when juxtaposition was done sequentially, compared to the meaning when juxtaposition was presented simultaneously.

2. Shots were presented to one group of subjects singly (unjuxtaposed), and the same shots were presented to other subjects as reaction shots within action-reaction juxtaposed pairs. It was found that when juxtaposing (both simultaneously and sequentially) a single action shot with a single reaction shot of a face, there was no significant difference at the .01 level in the meaning of the face, compared to its meaning when presented singly.

3. Simultaneous and sequential juxtapositions of action-reaction, comparative, or contrasting shots were presented to the subjects, who were instructed to rate the meaning of each pair as a whole. It was found that when juxtaposing a pair of action-reaction, comparative or contrasting shots, there was no significant difference at the .01 level in the meaning of the pair as a whole, when juxtaposition was done sequentially, compared to juxtaposition presented simultaneously.

4. When subjects rated each juxtaposed pair of action-reaction, comparative, or contrasting shots as a whole, it was found that in six of the eight pairs the ratings of pairs as a whole significantly resembled one of the pair's constituent visuals. In two of the action-reaction pairs as a whole, the ratings resembled neither of the constituent visuals.

Hypotheses One and Three were proposed as an attempt to assist in establishing a baseline that would serve in the delineation of the different phenomenological effects of different presentation methods (simultaneous and sequential juxtapositions). Such an analysis was warranted by the facts that:

1. there are perceptual differences between viewing stimuli simultaneously and sequentially, and

2. no research had been done on this specific topic.

While there was no significant difference in the ratings between simultaneous and sequential conditions, it should be noted that there was almost a significant difference in the ratings when simultaneous juxtapositions were presented first. As it is possible that this difference may be due to prior exposure to the stimuli, it is recommended that the experiment be replicated, preferably with a far greater time period between simultaneous and sequential ratings, or using different subjects in the simultaneous and sequential conditions.

Further, a closer inspection of the ratings revealed that three of Osgood's Activity scales produced a goodly portion of the variance between simultaneous and sequential ratings. It is therefore recommended that the present experiment be replicated using either all Activity scales, or a disproportionate share of them.

In regard to Hypothesis Two, the fact that this study contradicted the frequently cited Kulsehov-Pudovkin experiment is perhaps attributable to differences in the experimental designs, the subjects, and the methods of responding to the stimuli. The fact that action-reaction visuals of Set I were characterized by lack of associative cues or assertions binding them together could likewise be responsible for the insignificant differences in the meanings of juxtaposed and unjuxtaposed visuals. This writer recommends that further research be conducted involving a more precise examination of the comparison of the meanings of juxtaposed visuals in regard to the presence and absence of associative cues.

Research into the final question stemmed from inquiries of psycholinguists in respect to laws of word mixture. Using a design similar to the one proposed by Osgood and Sebeok to explore how combinations of signs relate to their components, it was found that the meaning of each pair of visual rated as a whole was more influenced by one of the visuals within the pair. It is conceivable that lack of assertions between contrasting and comparative pairs led subjects to focus on just one of the visuals. Support for the notion that the existence of assertions between visuals leads to a change in meaning can be found in two pairs rated as a whole, where one visual in each pair was obviously an action and the other a reaction, and where there existed either a semantic or kinetic cue binding the shots. For this reason, it is again recommended that further research be undertaken, in respect to the meaning of juxtaposed visuals with the presence and absence of associative cues.

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Appendix B

INSTRUMENT

Bad ___ ___ ___ ___ ___ ___ ___ Good

Heavy ___ ___ ___ ___ ___ ___ ___ Light

Slow ___ ___ ___ ___ ___ ___ ___ Fast

Concerned ___ ___ ___ ___ ___ ___ ___ Detached

Harsh ___ ___ ___ ___ ___ ___ ___ Mild

Wild ___ ___ ___ ___ ___ ___ ___ Tame

Passive ___ ___ ___ ___ ___ ___ ___ Active

Hard ___ ___ ___ ___ ___ ___ ___ Soft

Cold ___ ___ ___ ___ ___ ___ ___ Hot

Serious ___ ___ ___ ___ ___ ___ ___ Frivolous

Lonely ___ ___ ___ ___ ___ ___ ___ Cheerful

Appendix C

INSTRUCTIONS

Instructions for Rating Reactions

The purpose of this study is to discover the meaning of certain visuals by getting your rating of the visuals on a set of scales. In your booklet there are seven sheets, each with three sets of scales. You will be viewing pairs of slides, the first slide in each pair being an action shot, and the second slide in each pair being a person's reaction to what is happening in the first shot. For each reaction shot (the second slide), would you please rate the shot on the basis of what it means to you.

Each scale has seven spaces, one of which is to be checked to indicate your judgment. For example, on the scale

COLD ___ ___ ___ ___ ___ ___ ___ HOT

if you feel the visual is EXTREMELY cold, you would put your check in the first space:

COLD ✓ ___ ___ ___ ___ ___ ___ HOT.

If you think it is QUITE cold, put your check in the second space:

COLD ___ ✓ ___ ___ ___ ___ ___ HOT

If you think it is only SLIGHTLY cold, place your check in the third space. If you are neutral about the visual and feel that it is neither cold nor hot, place your check in the center space, etc.

Please check ALL of the adjective pairs in ORDER. Do not skip any lines. It is best to work quickly. DON'T PONDER your answers, but rather work on the basis of your FIRST IMPRESSION.

(After making four practice ratings and rating the eight experimental visuals, the subjects were told that they would hereafter be viewing pairs of slides that could be compared or contrasted, or again where they would see an action and a reaction. For each pair of slides, they were asked to rate the meaning of the sequence as a whole, rather than just one of the slides in the juxtaposition.)

These directions were altered somewhat, depending upon whether the subjects rated the sequence as a whole first, the reaction shots first, or whether the subjects rated visuals in the unjuxtaposed condition.